# ORGANIZING A NATIONAL POLLUTION PREVENTION NETWORK: A REPORT BY THE NATIONAL POLLUTION PREVENTION ROUNDTABLE

Funded under a grant from the
Pollution Prevention Division
U.S. Environmental Protection Agency

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Project Advisors:

Kevin Dick, Nevada Small Business Development Center
and Chairman, National Pollution Prevention Roundtable
Gary Hunt, North Carolina Office of Waste Reduction
David S. Liebl, Solid & Hazardous Waste Education Center, Univ. Wisconsin
Gary Miller, Illinois Hazardous Waste Research Information Center
David Thomas, Illinois Hazardous Waste Research Information Center
Vic Young, Waste Reduction Resource Center

National Pollution Prevention Roundtable
Project Manager:

Natalie U. Roy
Executive Director, National Pollution Prevention Roundtable

Report Authors:

Robert L. Kerr
Lisa M. Lambrecht
Kerr & Associates, Inc.
2634 Wild Cherry Place
Reston, VA 22091
703-476-0710

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## FOREWORD

by Kevin Dick
Chair, National Pollution Prevention Roundtable
Nevada Small Business Development Center

The concept of a national pollution prevention clearinghouse is not a new one, but one which needs to be revisited and implemented with a fresh and more effective approach. EPA began efforts to develop a national pollution prevention clearinghouse system in 1989 with the PIES and PPIC electronic bulletin board and information clearinghouse systems. The Pollution Prevention Act of 1990 further supported the need for a national clearinghouse and required EPA to develop one.

To address the need for a system which can deliver more and better information supporting pollution prevention implementation, EPA provided grant funding to the National Pollution Prevention Roundtable (formerly the National Roundtable of State Pollution Prevention Programs) to develop a blueprint for an effective national pollution prevention information management and clearinghouse system. The Roundtable is the only organization of its type dedicated solely to promoting pollution prevention. Its membership is composed of public sector programs, and affiliates from the private sector and non-profit organizations with programs promoting pollution prevention. Member state and local programs have up to ten years experience providing pollution prevention technical assistance to thousands of businesses and government institutions. Many Roundtable members also have extensive experience with integrating pollution prevention approaches into existing regulatory programs. These Roundtable member programs have in many cases developed their own state, local or regional clearinghouse systems. They are also familiar with gaps in information currently available through federal, state and local clearinghouse systems.

The Roundtable surveyed over 300 state and local government pollution prevention programs and sought input from private industry and trade associations. Based on input received in these efforts a series of blue-ribbon panel meetings were conducted to review preliminary results and assist in designing the proposed clearinghouse system. The results of these efforts and discussions are presented in this report as a recommended design for the next generation pollution prevention clearinghouse system.

While in most cases direct one-on-one communication and assistance cannot be replaced with a clearinghouse approach, a national network can help to ensure that the information passed on by assistance providers is high quality, accurate and up-to-date. To accomplish this, the next generation system must address difficulties in information compilation, distribution and utilization which have been identified to date.

While a tremendous amount of pollution prevention information is currently available, much of it is very superficial in nature. Much of the information is very duplicative or out-of-date. Lacking in many cases is the type of detailed quality information specific to the particular context in which a company is working to prevent pollution. Information available through clearinghouses is typically not synthesized to be readily applied in specific business situations encountered in the field. This has resulted in a situation in which introductory information is available to get businesses interested in adopting pollution prevention practices and technologies but is not useful or detailed enough for actual implementation decision-making.

Often pollution prevention projects require examination and evaluation of context specific information. This information, when available, is often not catalogued or indexed as pollution prevention, and therefore not collected by current clearinghouse efforts. Many assistance programs and businesses do not have the necessary expertise or resources to obtain this information. Information gathering efforts can be duplicative and labor intensive if the information is not collected and catalogued in a clearinghouse system.

The past EPA PIES and PPIC efforts have also relied on the concept of user maintenance. This type of information collection and maintenance has proven to be difficult to implement. As a result, the user maintenance approach has hampered the ability of the systems to maintain sufficient quality information to be useful. These systems were also intended to provide direct information access to businesses. Experience has shown that typically small businesses will not use a centralized national database system, but rely on facilitated information delivery through assistance programs, trade associations, vendors and consultants.

The next generation system must address these barriers in order to provide information useful to the continued advancement of pollution prevention. While the expertise of Roundtable members is important to this mission, it is also necessary to recognize the diversity of organizations and entities which can be and increasingly are becoming involved in the delivery of pollution prevention information to its end users. To this end, it is essential to identify appropriate sources of sectoral expertise and involve them in the clearinghouse network. The network must also be conducive to use by assistance providers and end-users outside of recognized public sector pollution prevention programs.

EPA has identified pollution prevention as fundamental to its environmental protection mission and is working to reorient its regulatory programs and integrate pollution prevention into its environmental protection efforts. Other federal agencies are required by Executive Order to adopt and implement pollution prevention throughout their operations. The need for a pollution prevention information network extends well beyond state and local public sector programs and private sector

users.

Compilation and synthesis of quality information and easy access to that information will be critical to the success of EPA's efforts and those at federal facilities. The adoption of pollution prevention practices and approaches to environmental protection requires investment in information and distribution systems similar to those EPA has traditionally made for control and remediation technologies. Federal investment in a pollution prevention information network is the type of resource allocation the Agency has promoted at the state and local level to support pollution prevention. Such an investment can support federal as well as state and local programs and the needs of industrial users.

The Roundtable believes that the establishment of a new national clearinghouse with a regional approach will significantly improve the quality and accessibility of information required to fuel further implementation of pollution prevention. It will also serve to avoid unnecessary and duplicative information development and collection efforts which are labor intensive and consume scarce resources. The Roundtable considers the resolution of issues such as access to information and quality control to be critical to future success in the prevention arena.

We welcome any comments you may have on this approach and urge prompt action at the federal level to establish a next generation national pollution prevention clearinghouse.

## EXECUTIVE SUMMARY

The National Pollution Prevention Roundtable, supported by an EPA grant, has designed a National Roundtable Information Sharing Network to facilitate development and exchange of technical pollution prevention information. The proposed network would link state and local pollution prevention programs through regional centers. This clearinghouse system would provide sector- and process-specific information, utilizing expert components available through state and local programs, regional centers, manufacturing assistance programs and other sources. The activities of the network would be centrally coordinated through the National Pollution Prevention Roundtable, including a National Roundtable Information Sharing Network (Network) Advisory Board to set policy and allocate resources. A staff component would exist to manage resources and establish stable funding.

The primary purpose of the Network will be to facilitate increased implementation of pollution prevention by improving the efficiency of information compilation and distribution and improving the quality and utility of information distributed. The improved availability of higher quality information will serve to increase the capabilities of the state and local programs which provide pollution prevention technical information or support to industrial facilities. Ultimately, however, the Network will serve the needs of the industrial and commercial facilities which receive assistance directly or indirectly from the state programs.

The Network is structured so that the state and local programs have the ability to modify system components and operations in response to new needs and circumstances encountered with the industrial facilities they serve. It also provides a mechanism for state and local programs to develop relationships with a variety of other partners in facilitating pollution prevention information development and dissemination -- particularly industrial and federal developers, managers and users of technical pollution prevention information.

In order to design the Network to meet the needs of state and local programs and their industrial users most effectively, the Roundtable surveyed its state and local members to evaluate their pollution prevention information resources, needs and concerns. The Roundtable collected further information during subsequent telephone interviews. In addition, the Roundtable gathered information on business pollution prevention needs through review of existing survey information and through a supplemental survey of its own. Finally, the Roundtable held Blue Ribbon Panel meetings including a range of stakeholders and provided briefings to meetings of state and local program representatives in order for them to review its analysis of the survey and information-gathering efforts, and to provide comment on an initial design of the Network.

**Major findings from the Roundtable survey and interviews included:**

- The most important functions for a pollution prevention information network for state and local programs are:
  - Making information readily accessible and easy to search;
  - Collecting and making available updated, high quality, technical information;
  - Identifying primary/expert sources of information; and
  - Providing sector- and process-specific information in an integrated/synthesized form.
- Among current sources of pollution prevention technical information, state and local programs generally find the most useful to be state and regional clearinghouses and libraries, vendors, manufacturers (including those where the programs provide on-site technical assistance), and trade associations. Much of the most useful information comes through informal networks of contacts, and many programs were particularly interested in means to facilitate and expand such contacts.
- Although state and local programs indicated some interest in other types of information, they overwhelmingly selected technical information as the crucial ingredient of a useful pollution prevention information network. In addition to basic technical information on common industrial sectors and processes, the programs identified a need for:
  - More context-specific information on common sectors and processes;
  - More specific case studies, including studies which, beyond describing final choices and results, make clear the evaluation and decision processes companies went through in implementing pollution prevention alternatives;
  - Pollution prevention information for specialty industries and processes; and
  - Management and financial information for assessing pollution prevention alternatives.

- Quality review of information on the network is critical, but the review process should be subsequent, not prior, to uploading of information in order to avoid delays in making information available. The system should distinguish between information which has or has not been reviewed.

- No single information format (e.g., electronic bulletin board, hard copy, computer disks, etc.) would satisfy the needs of all state and local network users, or even of particular users on all occasions. Making information available in a variety of forms is the best alternative.

- It is important to provide for easy transfer of information from state and local programs to the network, and to solicit support for development, review and/or uploading of technical information from federal and industry sources.

- Adequate funding is essential for an effective national pollution prevention information network. A variety of funding options and sources were suggested, although no one recommendation stood out as being the solution to the funding problem. Developing stable funding will be a major role of the Roundtable's central coordinating staff.

The objectives and needs of state and local programs for a national pollution prevention information network can best be met by a diverse, decentralized regionally-based network designed, managed and coordinated to meet regional needs identified by state and local programs and their customers. Such a network could be responsive to specific regional concerns, since the regional centers would be aware of and more closely involved in industrial and pollution prevention program needs, concerns and accomplishments in the areas they served. The network would also ease the access and data-search burdens for overworked pollution prevention program staffs trying to meet day-to-day customer requirements. It could provide access, on a national basis, to high quality and specialized technical information -- both through its own resources and through ties with relevant federal or industrial databases.

The major elements and roles in such a system include:

- Regional pollution prevention information centers (not necessarily parallel to the EPA regional structure) providing or facilitating access to technical information for state and local agencies;

- Sector- and process-specific expertise identified in a variety of organizational arrangements (e.g., building on currently-existing regional, state or local capabilities, and utilizing other available external sources of expertise,

potentially including resource centers set up by industry or the federal government);

- o Regional advisory boards to help direct the activities of the regional centers;

- o A national staff component in the National Pollution Prevention Roundtable to coordinate network activities and to manage and secure resources;

- o A national advisory board (comprised of members selected by the regional centers and the Board of Directors of the National Pollution Prevention Roundtable) to set policies and operating procedures for the network.

The Network would provide a mechanism for state and local programs to develop relationships with a variety of other partners (especially industrial and federal) in facilitating pollution prevention information development and dissemination. One of the potential federal linkages for the proposed network would be a revitalized, fully operative Pollution Prevention Information Exchange System (PIES). The PIES system, managed by EPA's Office of Research and Development (ORD) could provide a national database of pollution prevention information which would greatly facilitate information exchange and collection, and could provide interconnections with other valuable sources of information; at the same time, PIES would benefit from information collected and distributed through the National Roundtable Information Sharing Network.

# 1.0 INTRODUCTION AND BACKGROUND

## 1.1 Introduction

Both availability and accessibility of pollution prevention information are vital to state and local pollution prevention providers and to commercial and industrial facilities. Currently, however, there are significant gaps in the information that many programs and companies have or can readily obtain. The national pollution prevention information sources developed by EPA, such as the Pollution Prevention Information Clearinghouse (PPIC) and the computerized Pollution Prevention Information Exchange System (PIES), have filled some, but by no means all, of these gaps.

The purpose of this report is to provide a starting point for discussing the pollution prevention information needs of state and local programs, and of the industrial facilities that they serve. This report will also explore ways in which participants in these programs believe a more adequate pollution prevention information network could be developed. It should be emphasized that while a "network" may be most commonly thought of as a computerized, searchable system, a network could equally well involve readily available hardcopies of essential information, access to industrial-process or other experts, or a regular cooperative sharing of information and ideas between people facing similar problems. In fact, the most valuable network design is likely to be the one that most effectively combines all of these elements.

The goal of such a network is not to duplicate the pollution prevention information that is already available, but to organize and compile it into a useful structure, and to facilitate identification and filling of gaps. The first step is to determine what pollution prevention information is currently available and how these existing sources of information can be organized.

In February 1994, the National Pollution Prevention Roundtable sent out a survey to over 300 state, regional, and local pollution prevention offices to "take a snapshot of current activities and identify top priority information and network needs." Follow-up phone calls were made to a selected number of respondents to elicit more detailed information than could be gathered from the written survey. Information on industry needs was obtained through the results of a survey of small- and medium-sized companies carried out by the Colorado Pollution Prevention Partnership; additional information was solicited through a Roundtable survey sent to industrial trade associations. Finally, two briefings (in Oregon and California) of state and local programs and two Blue Ribbon Panel sessions (in Washington D.C.

and Minnesota) of both users of pollution prevention information and those with a variety of expertise in pollution prevention information were held by the National Pollution Prevention Roundtable in the fall of 1994 to discuss the results of the survey and priorities for development of a pollution prevention information network.

This paper presents an analysis of the survey and interview responses, and a proposal, based on both the responses and the Blue Ribbon Panel meetings, for a pollution prevention information network to meet, as a first priority, the pollution prevention information needs of state and local programs and the industries they work with. Section 1.0 presents a description of the 1994 Roundtable state and local program survey and follow-up interviews, the Blue Ribbon Panel process, and background on the available industry-sector information. Section 2.0 provides some background information on state and local survey respondents. Section 3.0 includes an analysis on the perceived objectives and audience of a national pollution prevention network; this section contains a discussion of the goals and functions of a national network and a discussion of the potential target audience for such a network. Section 4.0 reviews the types and scope of information state and local programs and industrial facilities regard to be of greatest importance to incorporate in a pollution prevention information network, as well as views on available sources and forms of data, quality-control needs, and barriers to information availability, access and sharing. Section 5.0 discusses key issues of network support -- information collection and funding support. Finally, section 6.0 describes the structure of a pollution prevention information network to meet the needs identified in the previous sections.

### 1.2 1994 Roundtable State and Local Program Survey

In February 1994, the National Roundtable of State Pollution Prevention Programs sent out a survey to 305 state, regional, and local pollution prevention programs; 124 surveys (40.7%) were returned. The purpose of this survey was twofold. First, to obtain updated information on the various pollution prevention programs and, second, to gather responses and comments on organizing a national pollution prevention information network.

The survey was organized into 4 topical areas:

- Program update: an update of each pollution prevention program's activities, goals, resources, and areas of expertise;

- Customer needs: the needs of the industrial, commercial and other organizations which seek information or assistance from state and local programs, and the types of information or services typically provided

by the programs;

- o Access to information: sources, forms, quality and availability of the pollution prevention needed;

- o Design priorities for a national pollution prevention network: functions of a network, type and form of delivery of information.

## 1.3 Follow-up to the State and Local Survey

Because of limitations in the level of information which could be obtained through the survey, follow-up calls were made to 18 selected programs. Since the objective was to obtain a fuller picture of options and needs, an effort was made to contact both programs with substantial experience in utilizing and/or developing pollution prevention information, and additional state and local programs representing some degree of diversity in geography, range of experience and size. It should be emphasized that this was not a survey, but an effort to obtain additional information on issues and options, and to fill in some gaps in the information provided by the survey. Those contacted were provided with issues for discussion prior to the calls to allow opportunity for pulling together relevant information or getting feedback from others in their offices.

## 1.4 Information on Industry

In June 1994, the Colorado Pollution Prevention Partnership published the results of a telephone survey to delineate how medium and small businesses understand pollution prevention, and the extent and nature of the information such companies need to implement pollution prevention at their facilities. The survey included 300 Colorado small and medium-sized businesses, distributed relatively evenly across 14 SIC codes.[1] The survey examined companies' perspectives on

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[1] The industrial categories included in the study were pulp and paper manufacturing, chemical manufacturing, primary metal manufacturing, machinery manufacturing, transportation manufacturing, photo finishing, auto maintenance, dry cleaning, instrument manufacturing, electrical machinery manufacturing, fabricated metal manufacturing, rubber and plastic manufacturing, furniture manufacturing and printing and publishing. Pollution Prevention Practices and Attitudes: A Survey of Colorado's Small and Medium-Sized Businesses, Colorado Pollution Prevention Partnership, June 1994.

pollution prevention opportunities and costs, on the sources of and need for pollution prevention information, and on the role of government in establishing and meeting environmental objectives. These survey results provide significant insight into both what types of information small and medium-sized companies are likely to require, and the sources they currently look to for such information.

Some additional information on industry needs and perspectives was obtained from the following sources:

- The Roundtable sought additional information through a questionnaire sent to selected trade associations in the late summer of 1994, with a request that each association send the questionnaire to five member companies for response; the response rate was 17%.

- The Illinois Hazardous Waste Research and Information Center conducted a survey focused on pollution prevention in the Great Lakes region, including a wide range of interested organizations; eleven of eighty industries responded to the survey, and seventeen of seventy trade associations.[2]

- The University of Kansas Institute for Public Policy and Business Research conducted a survey of small businesses in Kansas on the value of various information sources for issues related to environmental regulations and compliance.[3]

- Three universities prepared a study of the printing industry for EPA which included a survey of 80 companies with respect to sources of technical and environmental information and incentives for change.[4]

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[2] Great Lakes Pollution Prevention Information Resources: Current Status and Future Recommendations, Illinois Hazardous Waste Research and Information Center, August 1994.

[3] Response of Kansas' Small Businesses to Environmental Regulation: Implications for Training, Institute for Public Policy and Business Research, the University of Kansas (September, 1993). The survey touches only tangentially on pollution prevention; the primary focus is obtaining information on and developing strategies for responding to regulatory compliance requirements.

[4] Printing Industry Study prepared for EPA's Office of Pollution Prevention and Toxics by California State University Center for Business and Environmental Studies, the University of Massachusetts Toxics Use Reduction Institute and

## 1.5 Briefings and Blue Ribbon Panel Meetings

During the fall of 1994, the National Pollution Prevention Roundtable held two briefings for state and local programs and two Blue Ribbon Panel meetings to review the priorities and options for a pollution prevention network which emerged from the Roundtable's surveys, interviews and analysis. The meetings included representatives of state, local, federal and business organizations, as well as other individuals, with major interest and expertise in pollution prevention technologies, information systems, and the use and dissemination of pollution prevention information. The briefings were held in Portland, Oregon for the Region 10 Pollution Prevention Roundtable (September 28, 1994) and at the Marconi Conference Center near Marshall, California for a meeting of California local government pollution prevention programs, state pollution prevention personnel from Region 9 states and EPA Region 9 pollution prevention personnel (October 20, 1994). Blue Ribbon Panel meetings were held in Washington, D.C. (October 26, 1994) and Minneapolis, Minnesota (November 1, 1994).

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the University of Tennessee Center for Industrial Services (April, 1993).

## 2.0 BACKGROUND INFORMATION ON STATE AND LOCAL PROGRAMS SURVEYED FOR THIS STUDY

Respondents to the National Roundtable survey included a range of different programs -- although most responses came from state and local agencies and universities. There was an approximately even division in the responses from regulatory and non-regulatory organizations. The following table provides a summary.[5]

Table 2.0 Roundtable Respondents
(Source: Roundtable Survey, 1994)

| | Reg. | Non-reg | Blank (no answer) | TOTALS |
|---|---|---|---|---|
| State agencies | 48 | 19 | 5 | 72 |
| Local agencies | 12 | 3 | 2 | 17 |
| Universities | | 27 | | 27 |
| Non-profits | | 3 | | 3 |
| Regional organizations | | 1 | 2 | 3 |
| TOTALS | 60 | 53 | 9 | 122 |

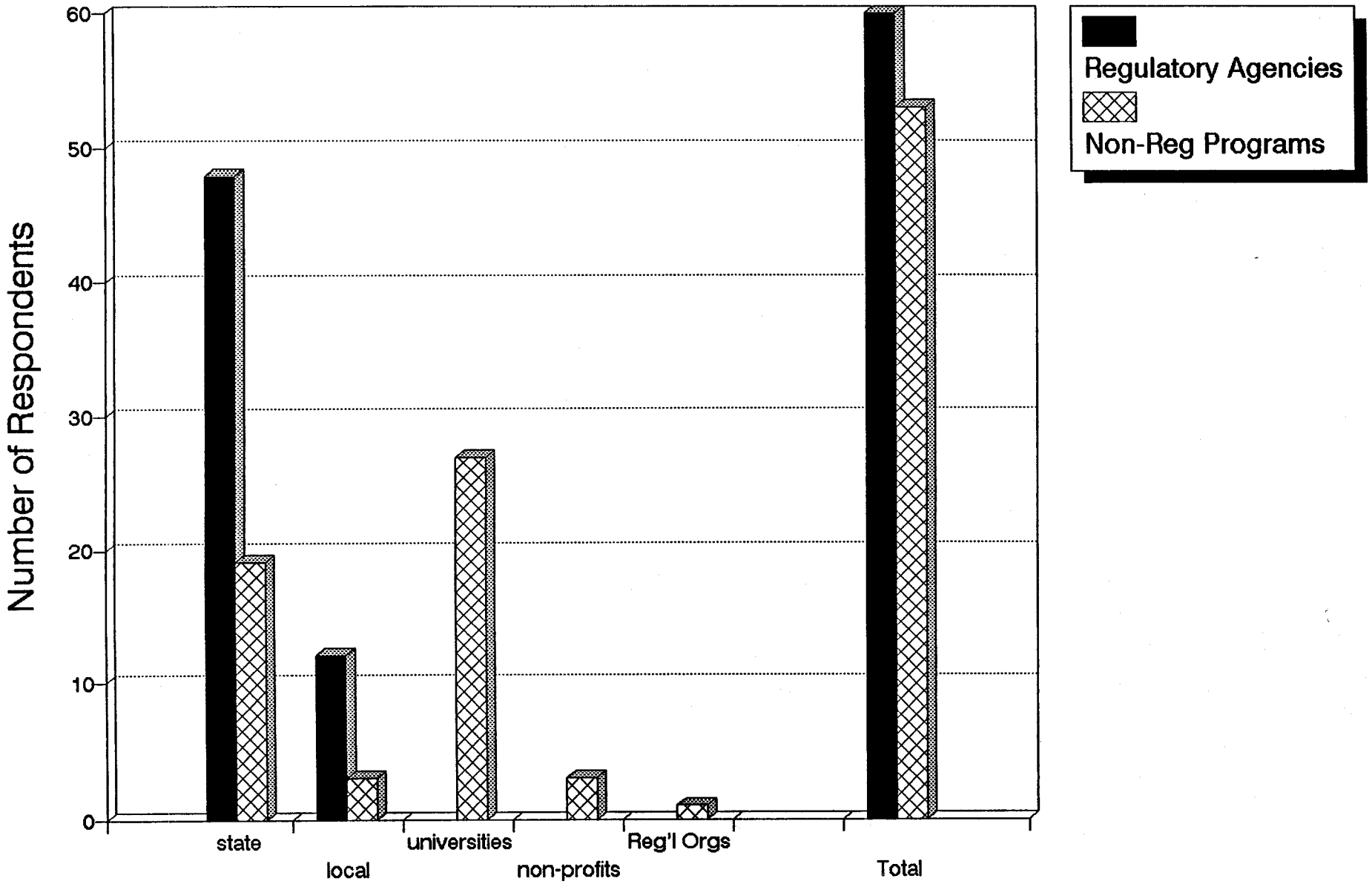
Many of the programs responding to the survey have extremely limited staff. Over half of those providing information on staff-size had fewer than the equivalent

[5] Ten universities and one non-profit organization left the regulatory/non-regulatory program question blank; since they are clearly non-regulatory, they have been added to the non-regulatory column in the table.

In addition to the 122 respondents above, two federal programs responded to the survey -- EPA Region 8 and the EPA office managing the PPIC program; their responses have not been included in this table.

# FIGURE 2.0 - RESPONDENTS TO SURVEY

## Regulatory/Non-Regulatory



of four full-time staff.[6]

In spite of the relatively small size of the program staffs, many of the programs serve a significant number of customers. Forty-three (out of 103) of the programs serve 500 or more customers each year, and some of these have a service base exceeding 1,000 (see Figure 2.1). Further, many of these programs (34) provide a significant array of on-site services to commercial and industrial facilities, as well as the less resource-intensive (per customer) provision of general information, telephone follow-up, training programs, seminars and workshops.[7]

In addition to the large numbers of customers currently being served by many of the programs, there is a general expectation of major expansions in the numbers of customers served, making efficient access to needed information increasingly important. Just under two-thirds of the programs expect their annual customer base to grow by 50% or more during the next two years. This expectation is fairly consistent across programs with different current numbers of customer being served.

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[6] In spite of data limitations, there are some interesting differences noted later between some of the responses of larger and smaller programs. The limitations: There were only 70 responses to the question. The precise numbers of FTEs are often uncertain because of the number of programs specifying a significant number of part-time positions.

[7] Respondents to the survey were divided on the basis of their responses to a range of questions involving direct on-site services to companies. The respondents (34) identified as being more involved in on-site work were those responding "often" to (a), or either "sometimes" or "often" to (b) or (c):

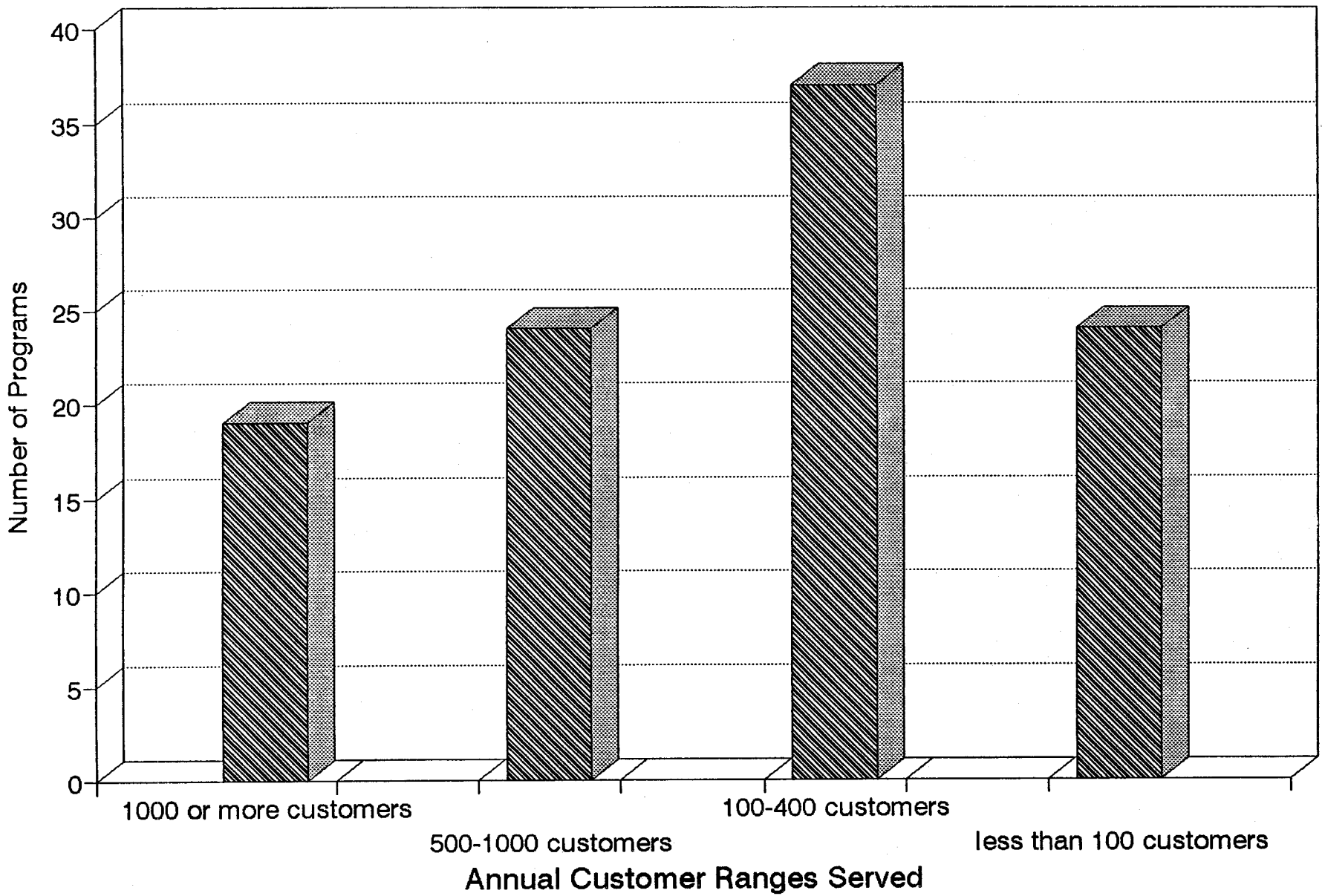
a) on-site consultation (several hours),

b) full on-site assessment (several days),

c) on-site assessment, plus assistance in development of long-term institutional pollution prevention program.

# FIGURE 2.1 - CUSTOMER VOLUME

## P2 Programs' Annual Service Base



## 3.0 OBJECTIVES OF A NATIONAL POLLUTION PREVENTION NETWORK

The primary goals of the pollution prevention information network depend principally on three considerations:

- Who will be the primary users of the network?
- What are the major needs, concerns and methods of operations of those users?
- How will the information provided through the network ultimately serve to promote pollution prevention by companies?

The general conclusion from the interviews and the Blue Ribbon Panel sessions was that the main direct audience and users of a national pollution prevention information network would be regional, state, and local regulatory programs and pollution prevention technical assistance providers, as well as university and non-profit technical assistance programs. While the specific needs of different programs vary widely, programs are generally concerned with the availability of current sector- or process-specific technical information, and many programs are concerned that the information be synthesized into a form which is readily usable either by the program or directly by the industrial customer. For the information to be valuable for the ultimate user, it must provide adequate detail on technical issues, costs, and the decision processes through which other companies have evaluated financial benefits and reduced technical process, product-quality or regulatory uncertainties.

### 3.1 Audience/Users of a National Network

While the ultimate target audience is industrial and commercial users, the national pollution prevention information network needs to be designed to build the capabilities of the state and local pollution prevention programs and other organizations who package and convey much of that information to their customers. While state and local programs would be the main direct audience and users of a network, respondents also mentioned federal agencies, NIST centers, technical assistance consultants, some trade associations and small business development centers as potential users. In fact, anyone who provides technical assistance to companies or government entities which create waste or pollution, as well as the company or government entity itself, could be considered a potential user of a national pollution prevention network. The related assumption is that, at least initially, the major industrial audience is the small and medium-sized businesses

who are the primary customers of these direct users -- that larger corporations are more likely to have the information and engineering resources they need available internally.

Most state and local respondents agreed that they would use a pollution prevention network when they could not answer current customer questions from their own past experience, from in-house information sources, or from information obtained through their current pollution prevention contacts and sources. In the Roundtable survey, respondents were asked about the percentage of time that their organization has to go beyond their in-house pollution prevention information and expertise in accessing pollution prevention information. Over a third indicated that they have the information they need in-house more than 70% of the time; more than half said between 50-70% of the time. Only 12% said they need to seek outside information more than 50% of the time.[8] Beyond the mere availability of information, however, many interview respondents were concerned with whether the quality of the frequently-used in-house information is really adequate to meet the needs of the program's customers, or whether form of presentation is suitable for making clear available options and opportunities for industry clients.

Even for those programs with the most limited demand for external sources of information, the need for additional information is still substantial.[9] For the majority of programs, there is a critical need for an efficient means of obtaining high-quality, technically up-to-date pollution prevention information.

The extent to which small and medium-sized businesses will directly use such a network is difficult to determine from the Roundtable interviews or from the available survey information. Responses by the Colorado businesses suggest that there is a strong preference among small and medium businesses for direct contact with sources expected to be both experienced and reliable (e.g., suppliers, other companies). Alternatively, these businesses are most likely to utilize regular sources of specialized information (e.g., industry-specific journals). The Colorado report noted that businesses "preferred information sources that they perceived to be particularly knowledgeable such as suppliers, other businesses, and printed

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[8] Of the 116 organizations which responded to this question, 41 respondents said that they seek outside sources of information less than 30% of the time; 61 respondents said between 30-50%; and 14 respondents (at least eight of which programs have fewer than 4 staff) said that they seek outside information more than 50% of the time.

[9] Only one respondent suggested that as much as 99% of available information is available internally.

materials." Similarly, the study of the printing industry indicates that trade journals, technical publications, industry associations and informal networks are the primary information sources (generally over 90% considered useful or very useful) for a range of technical and environmental information, and that the most credible sources of information are industry associations and suppliers.

The majority of Colorado business survey respondents indicated that an information clearinghouse would be either "not very useful" or "not at all useful," but this appeared to be due to their concerns about the reliability and adequacy of the information currently available through clearinghouses. A significant minority of the respondents, however, were interested in access to such an alternative source of information; five percent felt it would be "very useful" and 33 percent "useful."[10]

Most Roundtable respondents noted that small, and even some medium and large, businesses often lack the sophistication or resources to search electronic data systems for pollution prevention information. In addition, some respondents noted lukewarm interest even in their libraries and clearinghouses by companies;[11] thus while the companies are the ultimate users of the information, the technical assistance or other programs generally need to synthesize and package the information for them. Respondents indicated that most companies are seeking personalized, individualized assistance. This perspective was strongly supported by business members of the Blue Ribbon panels.

None of these experiences and expectations, however, were universal. One of the individuals interviewed, for example, felt that where his agency had disseminated hard copies of industry-specific information to small businesses in an easily usable format, the businesses had made effective use of that information without further need of technical assistance.[12] Another commented that a high quality sector-specific network would attract large companies as direct users.

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[10] Pollution Prevention Practices and Attitudes, pp. 22-23.

[11] Results of the Colorado survey suggest, however, that part of the reason for lack of use of clearinghouses may be due to lack of confidence in the quality and reliability of the information.

[12] None of the respondents specifically differentiated between small high-tech, innovative facilities and other small companies, nor does the Colorado data provide a means to make such a differentiation, but this might be a factor in the differing responses.

## 3.2 Functions of a National Network

Survey and interview participants identified several major objectives for an effective pollution prevention information network. The most important functions they identified were:

1) Making information readily accessible and easy to search:

Provide easy access to information, particularly due to the severe time and resource constraints under which so many of the programs operate. One key aspect of accessibility is that the information be organized in a way which makes it easy to search for sector and process information.

2) Collecting and making available updated, high quality technical information:

All of those interviewed noted the importance of ensuring availability of updated information, particularly given the rapid changes in many technological areas. Assuming some tradeoff would be necessary between keeping information current and providing peer review to assure the information's quality, most of those contacted felt that keeping network information current was more critical, and that a requirement for quality review before information could be included on the network could be a cause of significant delays in making information available; some advocated that a "buyer beware" approach to the information made available through a network would be preferable to such delays. Several Blue Ribbon Panel participants objected that such an approach threw a burden of quality review on small programs least able to cope with it. In addition, the medium and small business respondents to the Colorado survey indicated concern about the quality of information which would be available from a pollution prevention information clearinghouse. It was agreed that a balance might be achieved by allowing immediate access to non-peer-reviewed information, while also conducting reviews to screen out bad information and to provide some indication of the quality of the material. This would allow for the network to remove duplicative or bad information from the system, but allow "buyer beware" access prior to screening.

3) Identifying primary/expert sources of information:

One potentially valuable function noted in many of the interviews was the potential for referral to or identification of experts in a particular sector or process for context specific advice on complex or novel situations; their comments suggested that one of the higher survey choices, identification of

primary information sources, was seen to incorporate both referral to experts and referral (e.g., through extensive bibliographic information) to primary sources beyond the information available through the network.

4) Providing sector- and process-specific information in an integrated/ synthesized form:

Many state and local programs have limited resources compared to the scope of services they are called on to provide and the growing number of companies seeking those services. Most of those interviewed indicated that providing integrated packets of related materials would ease putting together relevant packages of technical information for the companies being served. (For a specific process, an integrated package might include such information as a technical process overview, analysis of technical alternatives, related case studies, backup technical articles, additional bibliographic references, financial information, lists of equipment vendors, and expert contacts).

While the interviews provided respondents with an opportunity to both identify and explain which functions they felt most important, survey respondents indicated the most critical roles of a pollution prevention information network by identifying the key functions that they felt a network should serve. The survey specified eight possible functions of a network for respondents to choose between, and asked those responding to select the three most important.
The list included:

- Collect information
- Standardize information format
- Organize information so it is searchable (either in a hardcopy or database format)
- Identify primary sources of information
- Synthesize information
- Training
- Outreach
- Referral to other information sources

The results, including a weighted total, are included in Table 3.1, and Figure 3.1.[13]

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[13] Points were assigned to each selection based on the following scale: 3 points for a ranking of 1 (most important), 2 points for a 2nd ranking, and 1 point for a third ranking. The points were then tallied for each of the 8 possible choices. For example, 21 respondents noted that collecting information was most important, 23 thought that it was second most

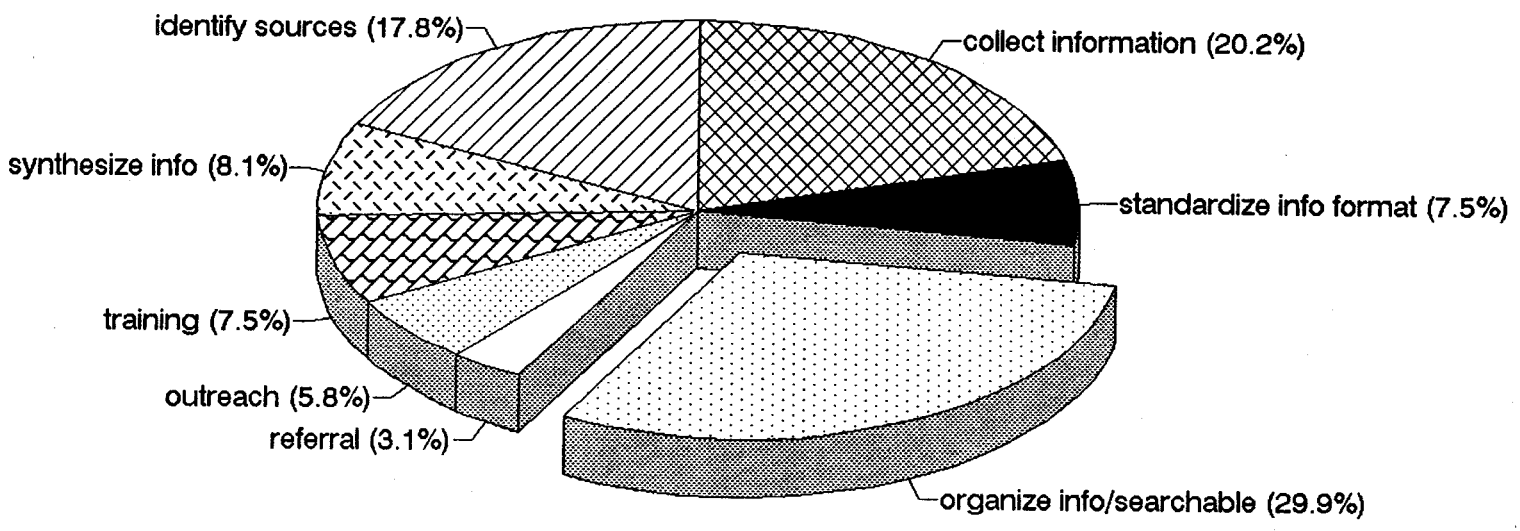
Table 3.1 Functions of a National Network
(Source: Roundtable Survey, 1994)

| | 1st | 2nd | 3rd | Total |
|---|---|---|---|---|
| Collect information | 21 | 23 | 23 | 132 |
| Standardize information format | 7 | 9 | 10 | 49 |
| Organize information to be searchable | 42 | 29 | 11 | 195 |
| Identify primary info sources | 17 | 19 | 27 | 116 |
| Synthesize information | 9 | 9 | 8 | 53 |
| Training | 9 | 7 | 8 | 49 |
| Outreach | 7 | 6 | 5 | 38 |
| Referral to other info sources | 0 | 5 | 10 | 20 |

important, and 23 respondents felt that it was the third most important function of a national pollution prevention network. The total points were calculated by 23 x 3 points + 23 x 2 points + 23 x 1 point for a total score of 132.

# FIGURE 3.1 - FUNCTIONS OF A P2 NETWORK

## P2 Provider Rankings



## 4.0 TYPE OF INFORMATION ON A POLLUTION PREVENTION NETWORK

### 4.1 Currently Available Pollution Prevention Information

When pollution prevention programs in state or local agencies and universities look for outside sources of information, they utilize a variety of technical sources and informal networks. Information sources included in the survey and/or mentioned in interviews include:

- Clearinghouses and Libraries - A number of states and regions have their own clearinghouses (e.g., Great Lakes Technical Resource Library) which contain hardcopies of pollution prevention and other information. PPIC (Pollution Prevention Information Clearinghouse) run by EPA, also provides pollution prevention information. Many states also use other states' clearinghouses. In addition, there are a number of libraries at both the federal and state levels which contain pollution prevention information.

  State and regional clearinghouses together constituted the highest utilized of the information sources included in the survey.[14] In addition, the state and regional clearinghouses filled the needs of those using them "sometimes" or "often" more frequently than any of the other sources ranked in the survey; 37% said they were usually satisfied (followed by manufacturers -- 31%). Information on use of, and satisfaction with, state and regional clearinghouses is combined in Table 4.1.1 and Figure 4.1.2, but analyzed separately in Figures 4.1.1 and 4.1.3.

- On-line Databases and Bulletin Boards - A number of on-line databases (such as PIES, TTN) are available which contain vast amounts of information, although sometimes only a small part is related to pollution prevention. Some states make use of these databases (many of them available free through TTN or Fedworld). Many of those interviewed, however, noted that some databases were cumbersome, expensive, or contained too little of the information for which they were looking. In the survey, PIES and other BBS systems

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[14] State and regional clearinghouses are not always clearly distinguished. For example, Waste Reduction Resource Center and North Carolina are both listed as clearinghouses. Other state and regional clearinghouses mentioned included MnTAP, NEWMOA, and Great Lakes.

did not rank high in use or satisfaction. On the other hand, the survey also indicates interest by a significant proportion of the programs in availability of pollution prevention information through electronic information systems, indicating that systems designed to effectively meet program needs and capabilities could play an important role in the future.

- Trade Associations - Some interviewees said that trade associations were good sources of industry-specific information. Some respondents noted that a few of the larger associations, such as Chemical Manufacturers Association and American Petroleum Institute, were able to provide some reasonably detailed level of pollution prevention information. Others, however, were less enthusiastic, noting that many trade associations were geared more towards the political needs of their members and/or organization of conferences than toward providing technical information. There was general agreement that the probability of obtaining technically valuable information depends on the particular trade association. Approximately a quarter of survey respondents making use of trade associations for pollution prevention information needs said they were usually satisfied.

- Manufacturers - Several of those interviewed indicated that the most useful information they obtain is from the manufacturing facilities where they do field visits to provide pollution prevention technical support. In the survey, manufacturers rank as one of the more frequently used and valuable sources of information.

- Vendors - Interviewees indicated that vendors are an extremely important source of technical information, and that they frequently have strong relationships with manufacturers. But the technical knowledge of the vendors does not always have a positive influence. The limitation is that vendors may promote their own equipment even when its use does not lead to appropriate or feasible pollution prevention measures. The value depends on the knowledge and role of the particular vendor. Survey results indicate vendors are one of the most frequently used sources of information; satisfaction with the information provided by vendors ranked between that for manufacturers and trade associations. States most frequently have a list of local vendors who sell equipment which may be used to achieve pollution prevention; out-of-state vendor lists may also be useful for gathering information on unique manufacturing processes or industries.

- Informal P2 Information Networking/Personal Contact - Both the interviews and the Roundtable business survey indicated the importance of informal networking as a source of information.[15] This networking consists of exchanging materials, information, technical expertise, and relevant experiences. In addition to informal networks between state and local agencies, some respondents noted the existence of informal pollution prevention information networks between some state organizations and industrial companies and between state organizations and consultants or other experts. A system such as P2TECH (see below) can be considered, in part, a means of facilitating and expanding informal networking. National Pollution Prevention Roundtable conferences and working groups have provided the most significant opportunities for informal networking.

- Professional Organizations - Some state, local and university pollution prevention organizations make use of information from professional organizations such as STAPPA, Air and Waste Management Association and local Chambers of Commerce.

- Case Studies - A number of technical assistance programs maintain detailed banks of case studies, based on their previous work with facilities. These case studies may provide information on process alternatives, pollution prevention implementation options, financial information, and obstacles. Several programs assemble and distribute collections of selected case studies to illustrate options, opportunities, and assessment procedures for pollution prevention.

- On-line Pollution Prevention Exchanges - Users post their pollution prevention questions with a description of the problem they are trying to resolve on an e-mail bulletin board. Other users of the bulletin board can provide answers, suggestions or relevant information. P2TECH, run by the University of Wisconsin's Solid and Hazardous Waste Education Center, currently provides an on-line information-sharing forum for pollution prevention technical assistance providers. Using Internet e-mail, users raise pollution prevention technical questions which are sent to all subscribers. Responses are forwarded

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[15] In the Roundtable business survey, almost eighty percent of the respondents (the highest percentage for any of the options) indicated that they often or sometimes contacted peers in their field for information on pollution prevention; the same percentage (also the highest) indicated that they preferred to access information through industry contacts.

to all subscribers so that everyone can follow the dialogue.

- Pre-packaged Pollution Prevention Information - A number of states distribute pre-packaged pollution prevention information on various industries, processes, solvent alternatives, to local and POTW pollution prevention technical assistance providers.

- Technical Magazines and Other Publications - Technical and trade association journals are highly valued sources of information for small and medium-sized businesses, according to the Colorado, Kansas and Printing Industry surveys. Staff of pollution prevention programs also utilize these sources, developing files of technical pollution prevention articles and extracts from technical magazines and journals; survey results indicated a significant proportion of programs ranked these as among the most important means of obtaining information.

While the Roundtable survey does not include all of the preceding options, it does indicate the use and value of several important information sources. The Roundtable survey asked respondents to choose from a list (see entries in Table 4.1) those sources which they use to obtain pollution prevention information, when similar information is not available in-house. Of the 122 respondents[16] to the survey, varying numbers responded to different parts of this question. For example, almost all organizations ranked their usage of trade associations, whereas only 72 organizations ranked their usage of professional organizations. Results (Table 4.1) are expressed as a percentage of those organizations which ranked that particular pollution prevention information source.

[16] Two federal sources that responded to the questionnaire were eliminated from the database.

Table 4.1.1 Pollution prevention Information Sources

| Source | Often | Sometimes | Rarely |
|---|---|---|---|
| States or regional clearinghouses (other than the responding organization's clearinghouse) | 25% | 44% | 31% |
| PPIC | 9% | 36% | 55% |
| PIES | 7% | 30% | 63% |
| Computer bulletin boards | 7% | 36% | 57% |
| Trade associations | 22% | 51% | 28% |
| Manufacturers | 24% | 51% | 25% |
| Consultants | 14% | 39% | 47% |
| Vendors | 31% | 42% | 26% |
| Professional organizations | 14% | 46% | 40% |

Additional analyses of the same data are provided in Figures 4.1.1 - 4.1.3. Figure 4.1.1 presents the level of use of the various sources, broken out separately for those programs reporting greater or lesser emphasis on onsite services.[17] The use levels are based on the percent of those responding to any part of the question who use the source often or sometimes.

Figure 4.1.2 presents the levels of satisfaction with the various information sources among those who make use of the source. The satisfaction ratio is based on the percentage of those who make use of the source who are usually satisfied.

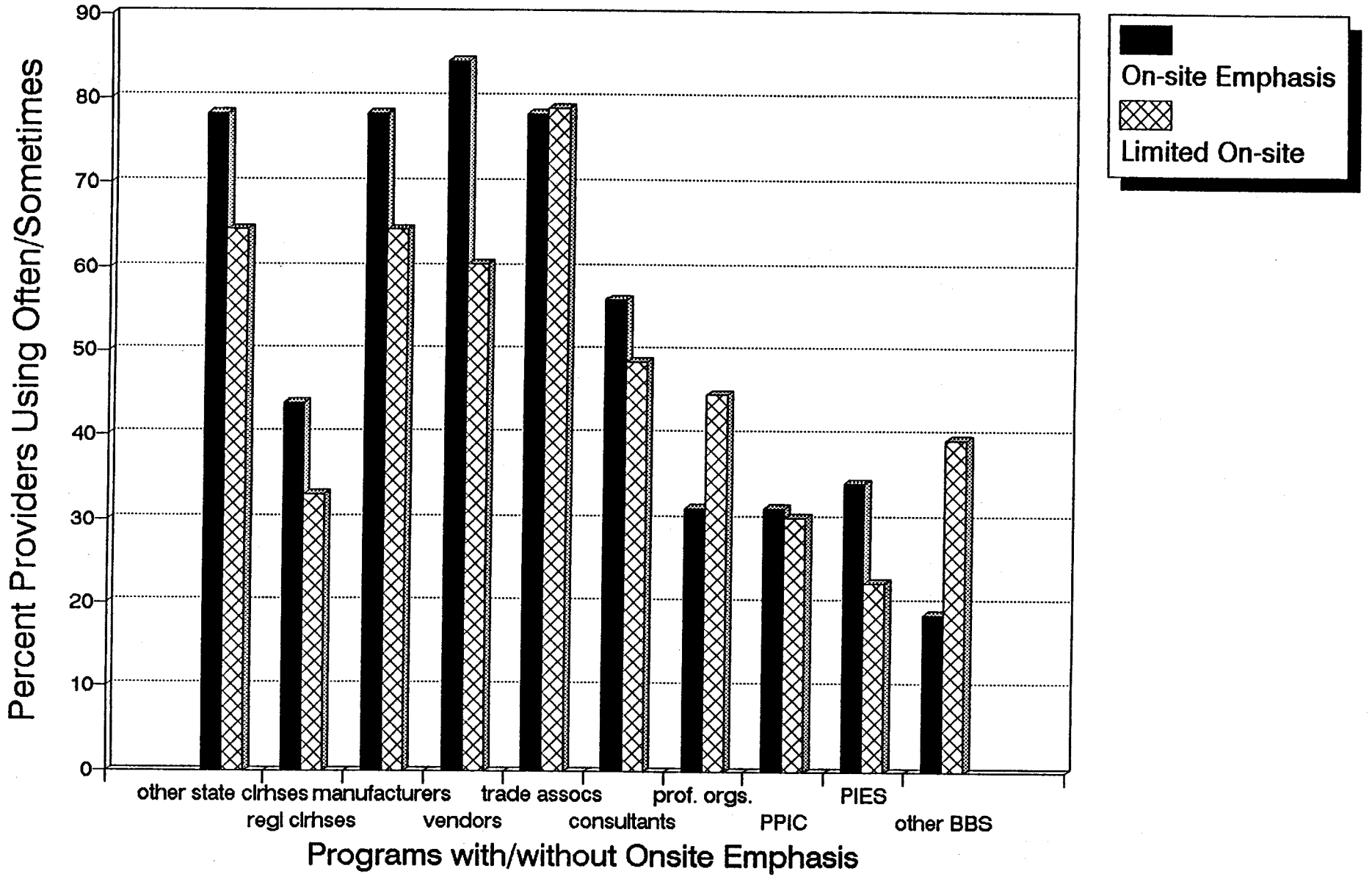
Figure 4.1.3 integrates the information into a unified index of use and satisfaction. The overall index is based on a multiple of percent use ("often") and satisfaction ("usually").

The small and medium-sized business respondents to the Colorado survey provided a somewhat different ranking of sources to which they would turn for pollution prevention information. The source used most frequently was reported as suppliers (just under 40% of the respondents). Industry-specific publications were

[17] See discussion of relative onsite emphasis of programs in footnote 5.

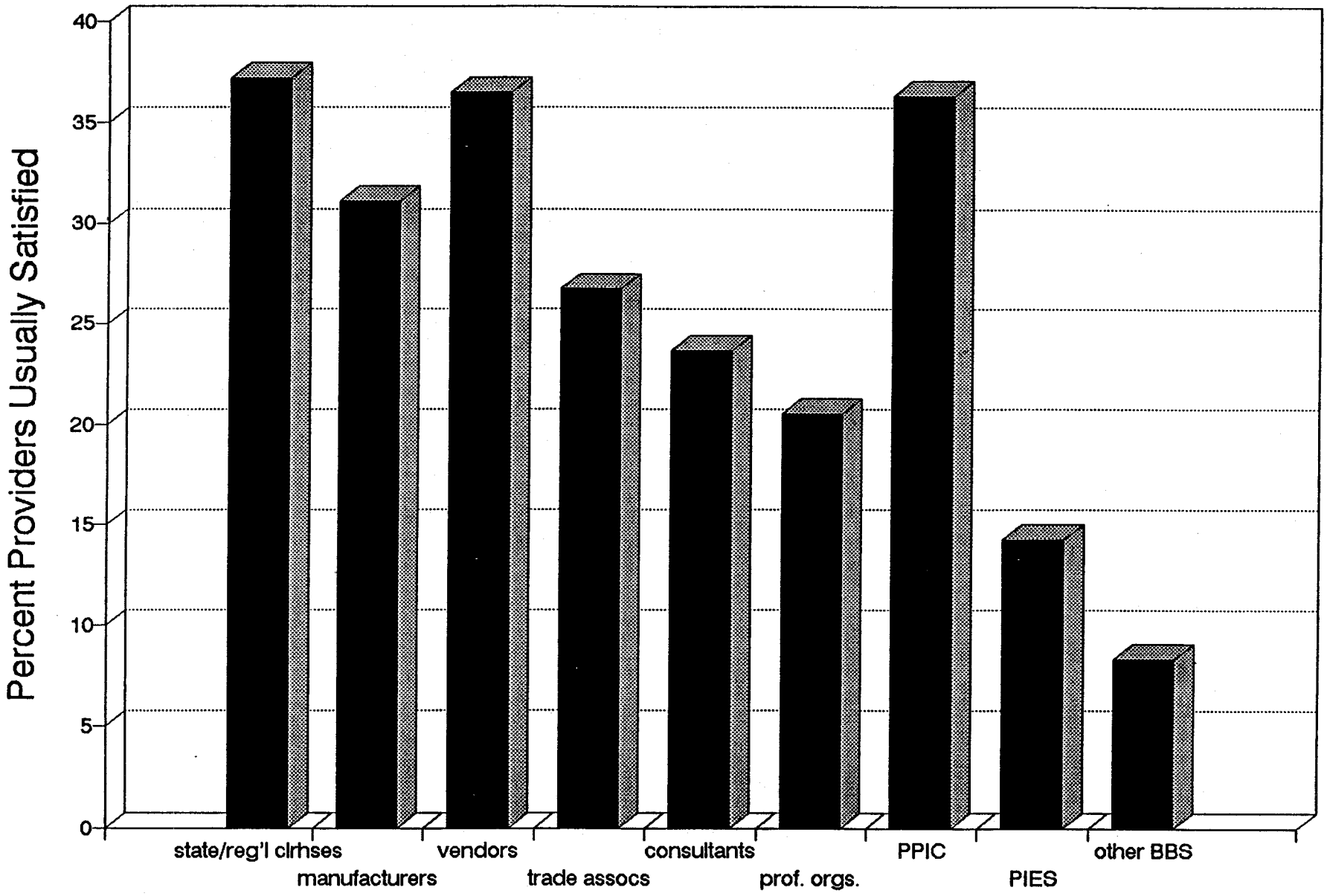
# FIGURE 4.1.1 - INFORMATION SOURCES

P2 Provider Use of Various Info Sources



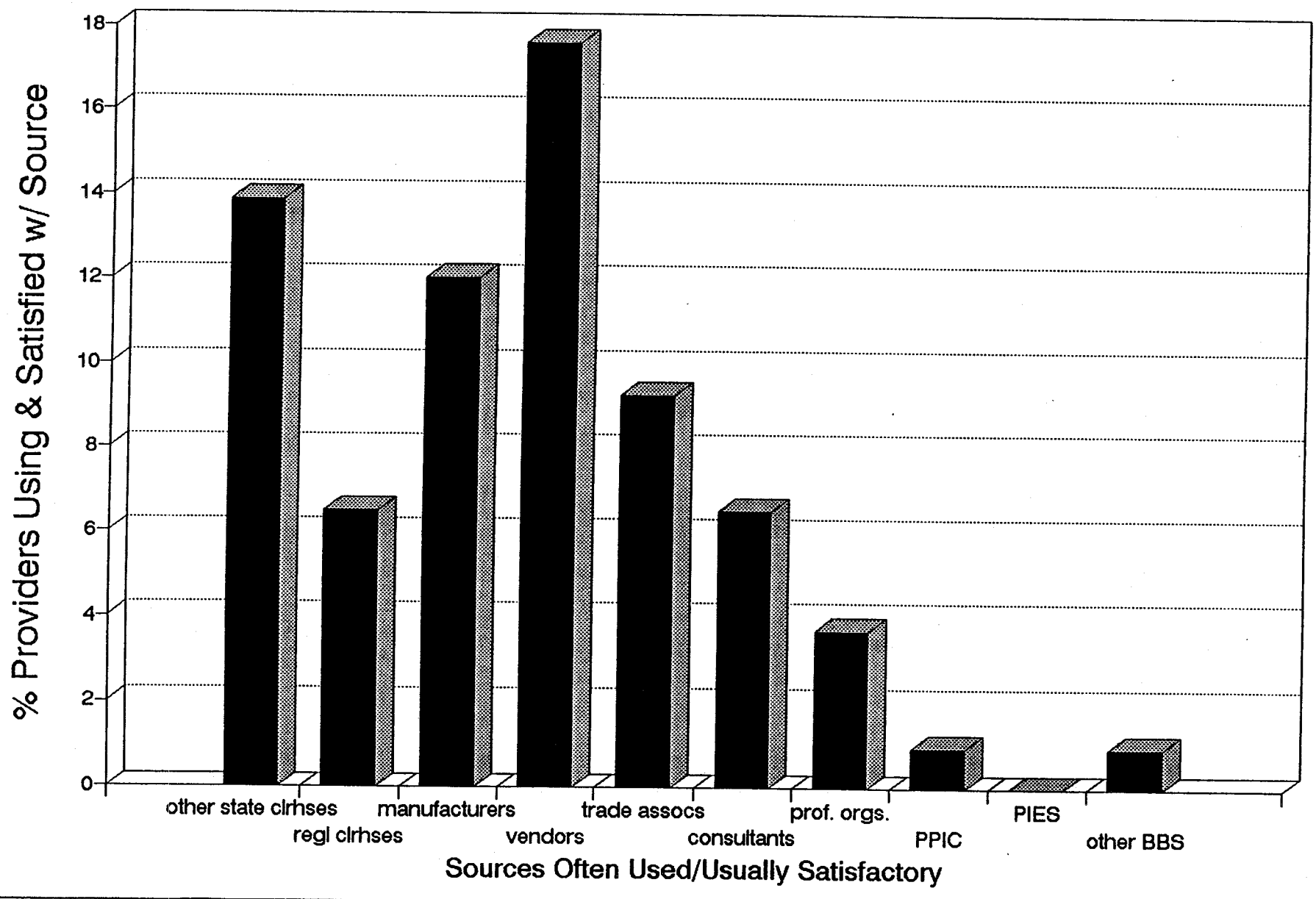
# FIGURE 4.1.2 - INFORMATION SOURCES

P2 Provider Satisfaction w/ Info Source



# FIGURE 4.1.3 - INFORMATION SOURCES

P2 Provider Use/Satisfaction Index



next (30%), followed by other companies (24%).[18]

## 4.2 Types of Information Needed for a Successful Pollution Prevention Network

The answer to the question of what makes a pollution prevention network worthwhile was unequivocal in both survey and interviews: technical information. Interest in having the network provide any other kind of information was dwarfed by comparison. The overall results from the survey are presented in Table 4.2. In Figures 4.2.1 and 4.2.2, the results are presented separately for those programs indicating greater or lesser emphasis on onsite activities. Assuming that case studies are a form of technical information, programs reporting an emphasis on onsite activities assign over 50% of the weighting to immediately available technical information.[19]

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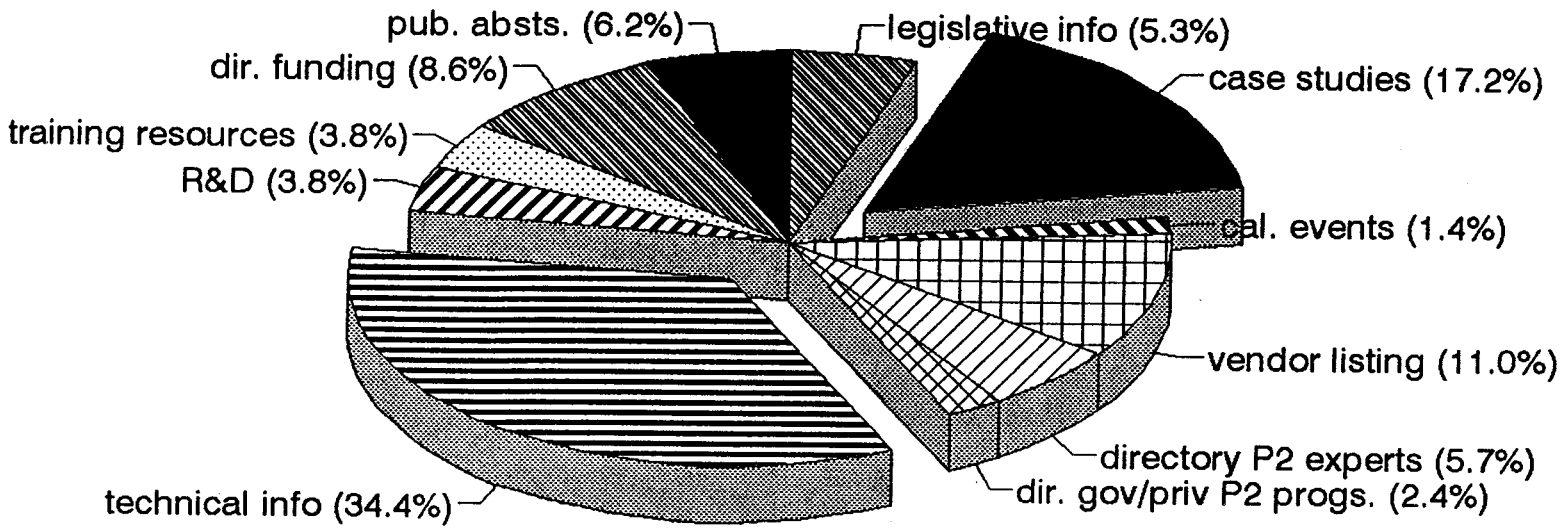
[18] Pollution Prevention Practices and Attitudes, p. 23.

[19] Including publication abstracts and R&D information, the technical information component would increase to over 60%. Survey respondents were asked, "What information should the network provide"? Respondents were given a list of choices and were asked to rank the top three, with number 1 being the most important. Points were assigned to each selection based on the following scale: 3 points for a ranking of 1, 2 points for a ranking of 2, and 1 point for a ranking of 3. The points were then tallied for each of the 12 possible choices.

# FIGURE 4.2.1 -NETWORK INFORMATION NEEDS

## Rankings-Programs w/ Onsite Emphasis



# FIGURE 4.2.2 -NETWORK INFORMATION NEEDS

## Rankings-Programs w/out Onsite Emphasis

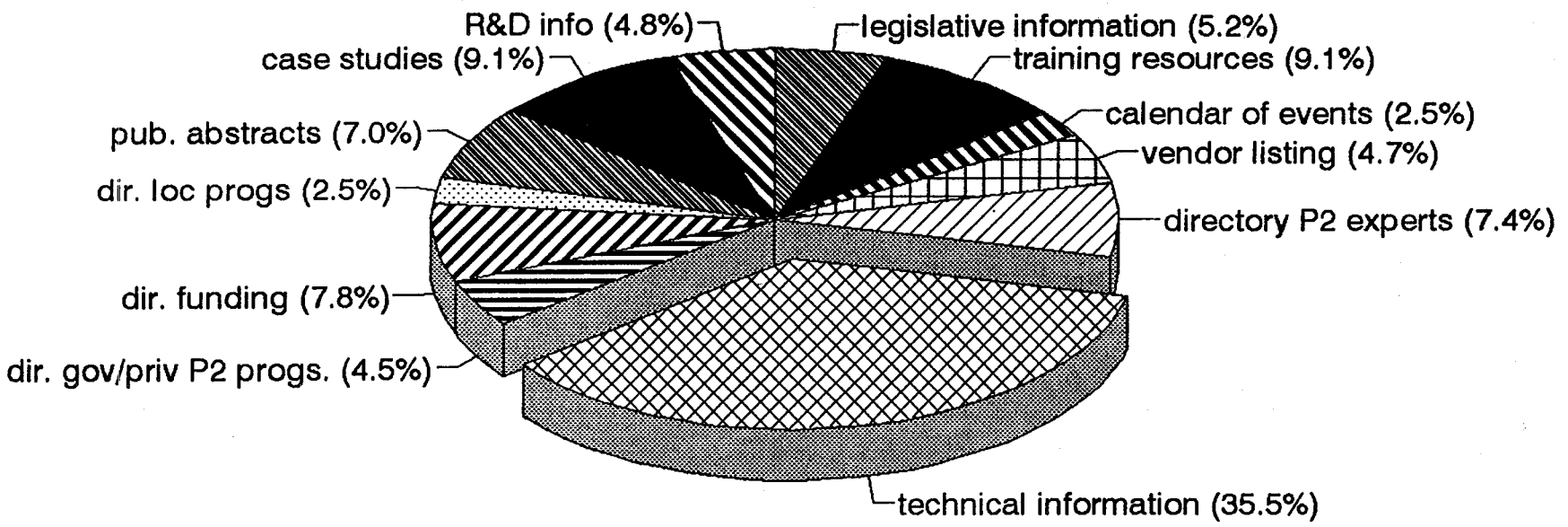


Table 4.2 Types of Information a Network Should Provide

| | 1st | 2nd | 3rd | Total |
|---|---|---|---|---|
| Technical information | 71 | 16 | 7 | 252 |
| Legislative information | 5 | 9 | 5 | 38 |
| Training resources | 7 | 12 | 10 | 55 |
| Calendar of events | 0 | 4 | 8 | 16 |
| Vendor listing | 5 | 13 | 6 | 47 |
| Directory of P2 experts | 6 | 9 | 15 | 51 |
| Directory of government and private programs | 3 | 6 | 6 | 27 |
| Directory of funding sources | 6 | 10 | 16 | 54 |
| Directory of other local programs | 2 | 1 | 1 | 9 |
| Abstracts of publications | 6 | 7 | 16 | 48 |
| Case studies of successful activities | 5 | 23 | 24 | 85 |
| R&D information | 3 | 8 | 6 | 31 |

While the general thrust of concern and interest in technical information is clear, responses from the interviews provide some greater detail on the perceived technical information needs:

- Most interviewees expressed a need for **integrated, synthesized packets of information** which contain different types of materials related to one pollution prevention process, industry, or option. Many of those interviewed stressed the importance of including fundamental process information in the package. The most common elements described for such a package included an up-front section (brief, just a few pages) providing a basic overview of a type of operation or process, options for pollution prevention changes (e.g., process modifications, substitutions); back-up supporting materials on processes, process chemistry, sources of additional information or expertise, etc.; and supporting quality case studies. For example, instead of just providing a case study on electroplating or a brief fact sheet, a network should have related information such as technical

articles, lists of experts, vendor lists, etc. already aggregated to go along with the case study or fact sheet. The general view expressed in interviews was that the vast majority of the pollution prevention information needed by the companies served by public agencies and universities is "out there," but is too difficult or resource intensive for most programs to access, sort through and organize.

o Specific technical information identified as necessary to be incorporated in a network included:

- **Context-specific, more technically detailed and more comprehensive pollution prevention information on common industries:** A frequent concern was the generality and/or limited scope of much of the available information, and the need to obtain information beyond what is commonly known about industries for which pollution prevention information is regularly needed -- particularly with respect to the key technical and economic parameters which are critical to the decision-making process. For example, most programs have information on solvent substitutes, but lack information on financial costs of switching to these alternatives, on the equipment which may be required, on problems other facilities have encountered, etc.

- **More specific case studies:**

  - Evaluation and decision process: Provide more detail from companies which have implemented pollution prevention options, including the key technical parameters (e.g., chemical compatibilities, physical characteristics) and economic factors considered, and how these elements were evaluated and weighed throughout the decision-making process. This would aid other companies which would like to implement a particular option, and would indicate what problems were encountered, how were they solved and how they could be avoided in the future.

  - Technology transfer between industrial sectors: Provide information on the transferability of pollution prevention options and alternatives to different industries and\or situations (e.g., spray nozzle technology may apply to the paint industry or the agricultural chemical spray industry).

While there was considerable interest in case studies, there was concern about whether case studies would provide enough critical detail to be really helpful. While companies are interested in what others have done, success stories are, by themselves, inadequate. Respondents expressed interest in having case studies which included both a high level of technical detail and captured the decision-making process which led to the ultimate choices.

- **Pollution prevention information for specialty industries and processes.**

- **Management and financial information for assessing pollution prevention alternatives:** This would include information on application of full-cost accounting, pollution prevention case studies with financial information (though there were concerns about the transferability of cost evaluations between facilities), and information on access to capital for pollution prevention projects (e.g., low interest loans and public financing of pollution prevention projects).

o A large proportion of those interviewed wanted the network to provide **access**, in some fashion, to the experts involved in the implementation of cutting edge pollution prevention technical alternatives. Ideally, these experts would be available to answer industry-specific or process-specific questions not answerable through the information otherwise available through the system. Although many respondents felt that this would be valuable, others questioned whether availability of the necessary expertise could be organized, funded, and managed efficiently in a national network.

o Most follow-up respondents liked the idea of an on-line information-sharing forum similar to the University of Wisconsin's P2TECH. They felt that this type of information-sharing would be significant to providing support to their customers, since sometimes the required information cannot be found through the organization's regular channels.

The responses of the medium and small businesses to the Colorado survey provide both support for the findings from the Roundtable survey and interviews, and some specificity about the types of information which would be of interest to them. The companies responded to a series of questions about the kinds of

pollution prevention or waste reduction information they needed. The highest positive response (80%) was to the need for "information about other companies' waste management plans." While the wording of the question, focusing on waste management, creates some ambiguity, the question was part of a series on waste reduction. The result correlates with other evidence of companies wanting to learn from the experience of other companies, whether through case studies or other means. The second highest percentage response (72%) was to the need for information about waste reduction technology. In general, the vast majority of companies were interested in the entire range of relevant types of technical information: chemical substitutes (69%), reducing chemical use (61%), waste reduction techniques (67%), reduction equipment (53%).

While the companies were not asked about the need for financial information related to pollution prevention options, the responses to questions about the economic consequences of pollution prevention support the importance of providing such information. Only a third of the companies felt that pollution prevention investments could be recovered in less than two years, while two years was the outside acceptable limit for cost recovery on investments for half of the companies. Two-thirds of the companies recognized that disposal costs would exceed, possibly far exceed, pollution prevention costs. While the overlaps of these attitudes is not clear from the report, it seems likely that there is a need to train companies on including waste management costs in cost recovery evaluations.[20]

## 4.3 Quality of Technical Information

Discussions on the quality of technical information on a network, both during interviews and during Blue Ribbon Panel meetings, focused on the potential conflicts between the need for making the most current information available, and the need for information which is complete and reliable. The polar views varied between a "buyer beware" approach which would allow any information onto the network to avoid the potential delays of quality review, and an emphasis on ensuring technical quality of all data on the system. While many of the respondents to the follow-up interviews agreed that ideally there should be a consistent level of quality in the information on a network, most said that users should take a "buyer beware" approach.

A few respondents noted, however, that "buyer beware" could be a barrier for the ultimate users -- the medium and small companies, and that there could be too much garbage for either small programs or small companies to sort through. These

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[20] Pollution Prevention Practices and Attitudes, pp. 25-28, B-6, B-8.

concerns were shared and emphasized by many Blue Ribbon Panel members, who stressed additionally that the companies have much more at stake than the information distributors if they make decisions based on information that turns out to be inaccurate.

Among the reservations raised about trying to assure information quality were the following:

- Numerous reviewers would be needed to check the technical integrity of each piece of information in a network, since no one person is an expert in every area.

- Information may be edited out of the network when it could have been of benefit to someone, since there may be disagreement as to what is valuable.

- Guidelines would have to be applied in deciding whether or not something is technically sound. Who should decide what these guidelines are? How should they be applied? Who should make the decision to include or not include certain information on a network?

- The review process would drain limited resources.

Some respondents and Blue Ribbon Panel members had ideas on possible ways to maintain the integrity of the network:

- Without trying to put a seal of quality on each piece of information in a network, develop a system for sorting out the obvious junk. Use of resources could be limited by reducing or eliminating scrutiny of certain classes of information (e.g., bibliographic entries).

- Contract with a consultant and/or committee of industry experts to maintain and assure the quality of the information in selected industrial sectors.

- Perform mini-reviews every 3 years or so to go through and cull out all of the old, outdated information. This process could be performed by a committee of representatives of the pollution prevention programs.

- Establish criteria to limit who can contribute information to the network.

- Require that each piece of information on the network have a technical contact in case the information needs to be verified or clarified.

- Involve industry in the monitoring process.

- Have expert centers or units review the entries for specific processes or sectors on a periodic basis.

## 4.4 Form of Information Provided Through a National Network

Both the survey and the interviews indicated a range of needs in terms of the form in which state and local programs would like to be able to receive or access pollution prevention technical information through a network. Most respondents indicated that no one form would satisfy the needs of all users, or even of particular users on all occasions, and that a combination of these forms was the best solution. Figure 4.4 provides a breakout of responses from the survey on the means through which respondents would prefer to have information provided.[21]

Table 4.4 summarizes respondents' comments -- reflective of the varying current needs, resources and capabilities of the programs -- on various forms through which information could be made available in a network.

Table 4.4 Medium for Information Obtained through a National Network (Source: Follow-up phone calls)

| Information form | Advantages | Disadvantages |
|---|---|---|
| CD-Rom | • Good form for presenting case studies, vendor lists, bibliographies, etc.<br>• Users can search through data without worrying about "being on the clock" like some of the "pay as you go" databases (e.g., Dialog) | • Users must have a CD-Rom player to access information<br>• Information needs to be updated periodically<br>• Information is only as good as the updates |

[21] Respondents were asked to rank their top three choices, given the options of telephone, conferences, electronic bulletin boards, publications (such as fact sheets, bulletins, brochures), videos, electronic databases, fax, or newsletter. Responses were weighted with 3 points for first choice, 2 for second, and 1 for third, then totalled by option. This was done separately for smaller programs (less than 4 staff) and larger programs. The percentage scores/preferences for all of the options total to 100% each for both the smaller programs and the larger programs.

| | | |
|---|---|---|
| Floppy disks | • Same advantages as CD-Rom<br>• More companies have the equipment to read the information on floppy disks | • Slower than CD-Rom & less information per disk<br>• Information needs to be updated periodically<br>• Information is only as good as the updates |
| Internet | • Becoming widely used by many people, businesses, organizations, industries, etc.; use/access likely to expand substantially during the next few years<br>• Contains wide variety of government and university databases which can be accessed for a nominal fee<br>• Some state agencies currently have Internet access<br>• Can be accessed by large numbers of people 24 hours a day | • Most agencies do not yet have direct Internet access<br>• Users without direct access must have, and be willing to use, a modem to gain access to Internet<br>• Need to know how to navigate the Internet system to find the needed information<br>• Value of access depends on accessibility and ease of use of individual databases |
| Bulletin board system | • Can be accessed by large numbers of people, usually 24 hours a day<br>• Numerous government and university databases with information relevant to pollution prevention | • Users must have, and be willing to use, a modem to access information in a BBS<br>• Value of access depends on accessibility and ease of use of individual databases |
| Hardcopy | • Can easily pass information on to others by mail<br>• Can refer back to the information in a hardcopy at any time with little effort or cost<br>• Requires no computer or modem | • Information must be updated periodically with new hardcopies of information<br>• Printing and mailing of hardcopy materials may be expensive |

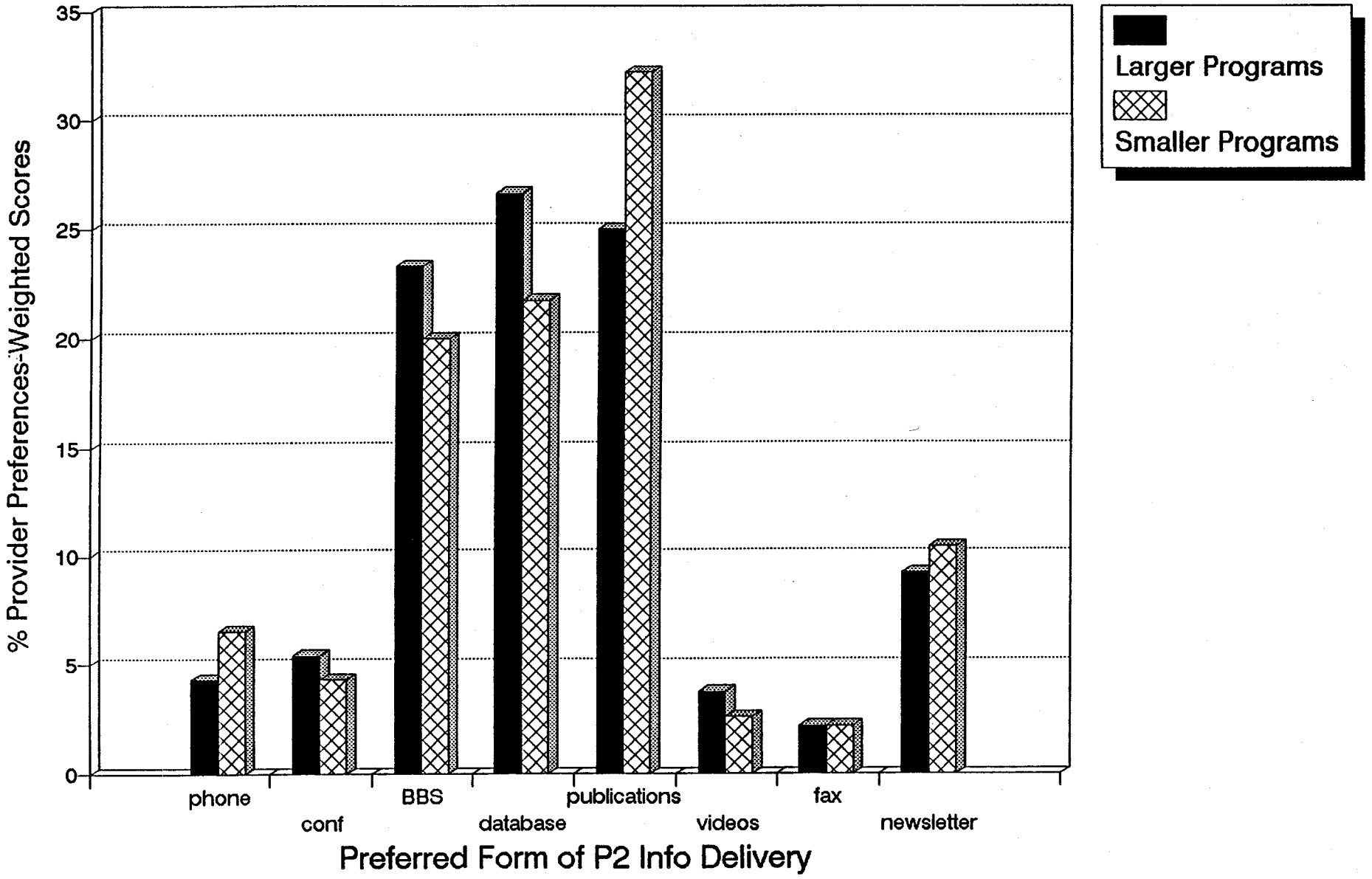
| | | |
|---|---|---|
| Experts or expert centers with phone access | • Pools of experts from industry (i.e., engineers, consultants, vendors, trade associations), universities, and government could provide expert help on various topics such as pollution prevention options and alternatives for specific processes, industries, and chemicals<br>• Users are able to interact with experts and ask questions of them | • Not enough funding available to staff expert centers<br>• Monumental task in setting up, organizing, and prioritizing funding of expert centers or availability of individual experts<br>• Information is only as good as the expert |
| On-line chat line | • Provides forum for up-to-date exchange of information by industry, government, and universities | • Users may need Internet access<br>• Too cumbersome for a large number of participants |

Additional comments on electronic systems included that they should:

- allow for quick retrieval of information and files so that users are not bogged down in flipping through screens that they are not interested in seeing,
- be user friendly,
- be searchable by key word and contain a number of different subject areas,
- be in a format that looks interesting to read,
- use commercially available software for easy uploading and downloading of files.

# FIGURE 4.4 - HOW TO PROVIDE INFORMATION

## P2 Providers w/ Smaller/Larger Staffs



## 4.5 Barriers to Pollution Prevention Information Sharing

Those responding to the survey were asked to identify major information-related barriers they saw to serving their customers. They were asked to prioritize between:

- o difficulties of finding necessary information,
- o problem of being swamped with too large a volume of information,
- o poor quality of in-coming information,
- o lack of a network to locate experts or information, and
- o inadequacy of staff to meet the information demands of customers.

Write-in votes were cast for:

- o finding information on financial assistance for customers and
- o general funding woes.

During the interviews, substantial emphasis was also placed on:

- o The limitations imposed on state and locally-funded programs in using those resources to provide services which principally help other states or localities, and
- o The hesitation of programs to share the identity of expert resources they have found with other programs.

While it would be difficult to rank the latter two issues against those selected for the survey, it was clear from the interviews that spending too much time or resources in helping programs or companies outside the state was of major concern. While the larger and more established programs have generally spent significant time in helping other agencies and departments, there are still limits to what they can do.

EPA Region IV originally established a pollution prevention resource center in North Carolina in order to partially facilitate and fund access for other state programs to the information and expertise which had been developed in North

Carolina. Beyond the issues of general program strength and expertise, there are also parallel issues of specialized industry-specific or process-specific expertise of particular programs. The main concern expressed by many is that state legislatures will not approve funding for their own states to spend significant resources in supporting a national network to help others unless the down-home benefits are clear.

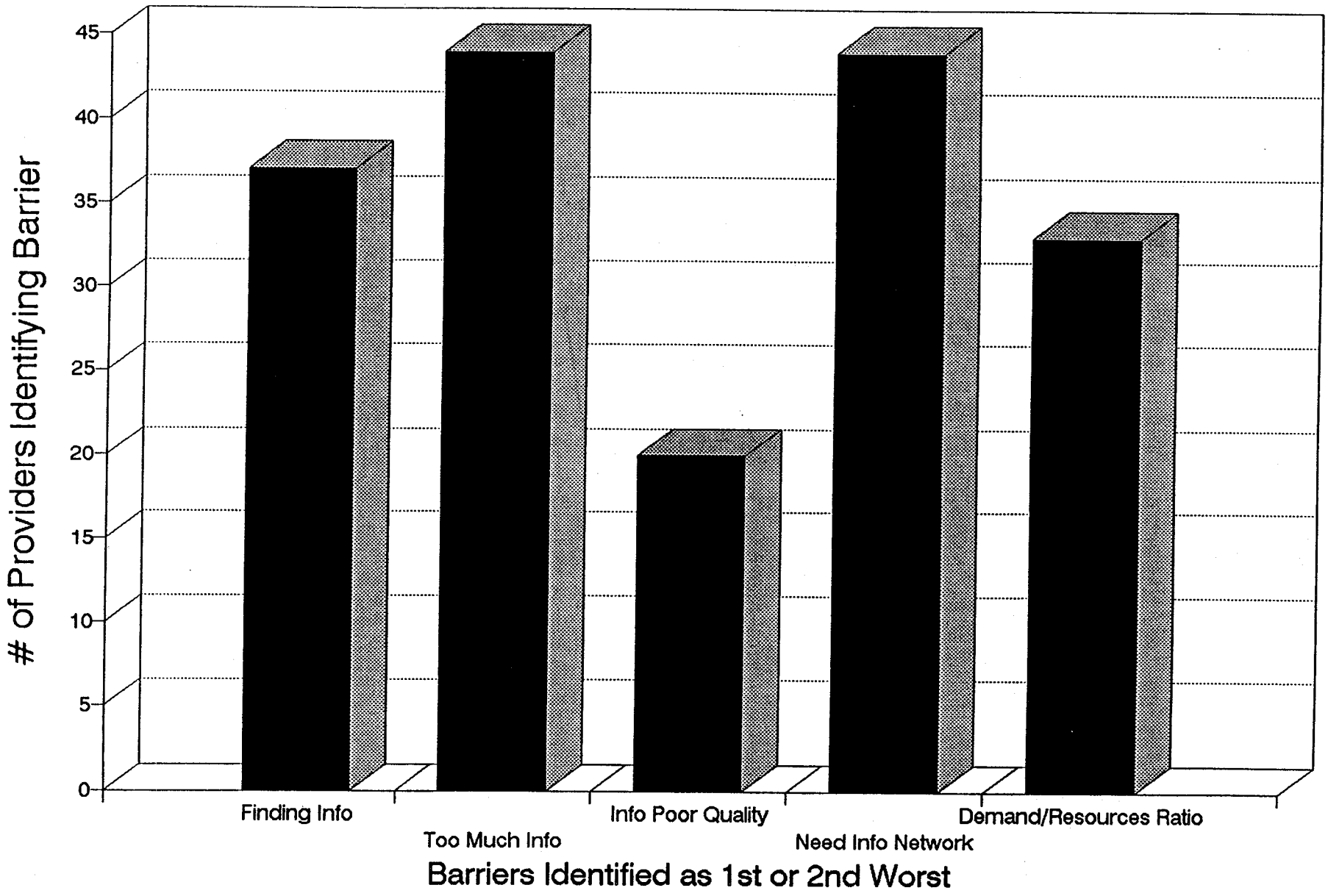
With respect to the barriers offered in the survey, interviewees tended to stress both the overwhelming volume of undifferentiated and unevaluated information with which programs are swamped (a problem particularly for smaller programs), and the lack of an organized database. Most respondents felt that there is currently too much data available that pollution prevention programs and industrial companies must wade through in order to get to the pertinent information. Smaller pollution prevention programs and those with scarce resources are unable to devote the time required to sift through this plethora of information. Therefore, a good deal of pollution prevention information which has the potential to help industry may not be getting to its proper destination. These results seemed to confirm the relative priorities accorded to the barriers identified in the survey (Figure 4.5).[22]

One potential barrier which, according to respondents to the follow-up survey, is minimal is company confidential information. Most respondents felt that most of the company confidential information is very specific and not usually applicable to a wide range of industries or processes.

[22] Figure 4.3 represents the total first and second choice votes by all of the programs.

# FIGURE 4.5 - INFO BARRIERS TO SERVICE

2 Highest-Ranked by Each Provider



# 5.0 NETWORK SUPPORT

## 5.1 Information Collection

There was a clear consensus from respondents to the survey and interviews that the key factor in making a national pollution prevention information system useful is the quality, range and presentation of information. Several suggestions were made during the follow-up interviews which might provide part of the basis for achieving this objective, and some of these are summarized below. The issue of collecting information for the system is also partially intertwined with another complex problem without simple answers -- the question of funding for a national system -- which is considered in the next section.

There was general agreement that developing an information base for a national system, however structured, would require the coordinated efforts of all those with an interest in the potential benefits that such a system could provide. This would include the state and local programs, industry, EPA and other federal agencies -- especially DOE, DOD and NIST. Among the suggestions:

- Make it as easy as possible for state and local programs to provide information to the system, both hardcopy and electronic. For example, several state and local agencies have developed books of process-specific and industry-specific case studies, and many have published them. Obviously these would be available in both hardcopy and electronic form. It would be easy for states either to submit disks or (at least in some cases) to upload files directly onto an electronic network. Several of those interviewed noted that one of the key factors in doing this would be in accepting that quality review of the information before it went into the system would create an impossible bottleneck. So long as the source and contacts were clearly identified, the motto to prevent enormous lag-times in information updating would have to be (as mentioned previously) "buyer beware." A periodic review mechanism could be used to quality check information added to the system, with clear indication of which information has or has not gone through such review. (Such a review mechanism could also be used to cull out outdated information to be removed from the system).

  One way of facilitating the gathering of this information for input into the system would be to create a Roundtable workgroup to both develop the method for submitting information and to track and encourage programs to submit information they are developing.

- Where state programs have developed technical documents that go a significant part of the way to providing the technical information needed to lay out pollution prevention alternatives, trade associations and companies might be willing to peer review the documents and either to make modifications directly or to suggest modifications to be made by the program. This kind of support has already occurred in some cases -- e.g., industry peer review of state-developed technical analyses prepared as part of the Great Printers Project.

- Both some state/local programs and some companies/trade associations might be willing to provide significant efforts for limited compensation -- that is, to produce needed technical reports at below cost. For state and local agencies, limited federal government financial support might be sufficient to spur efforts to develop materials for an information network both because they could demonstrate to state budgeters that they had some degree of federal support for their efforts, and because of the recognition their efforts could receive nationally. For companies or trade associations, the potential incentives would be the benefits of contributing information, on a partially subsidized basis, to benefit others in their industry (or among the association's members). For industry/trade association participants, the most efficient way to involve them might be in the kind of review-and-revise mode mentioned above.

- Review with EPA, NIST, NASA, DOE and DOD labs whether technical information or experience is available, or could be readily developed, which could be utilized to fill pollution prevention information gaps. Needs might be determined through a fairly detailed survey of programs on current specific gaps in technical information. This would not be a one-time event, but an on-going process. It would recognize the considerable range of shared interests between these federal agencies and the state and local programs helping to implement pollution prevention practices and technologies.

- Were there to be a charge for system use (an option most respondents felt would severely limit state and local agency participation, at least during the formative period of a system), one possibility would be to allow the charge to be waived or reduced for those providing information to the system. One caveat suggested to this approach was the risk that it would encourage quantity, but not necessarily quality, in contributions.

- Put out an RFP to gather state of the art and innovative pollution prevention information for industrial sectors included in the Common Sense Initiative or other priority sectors.

- Buy some of an industry expert's time to answers questions from state technical assistance programs. Post these questions on a bulletin board for all to see and index and archive answers.

- Encourage companies and trade associations to contribute case studies to exemplify and showcase their industry's successes.

While the suggestions for information collection were varied, most respondents agreed that the quality of the information depends on both the submitter and the regularity and adequacy of the review process. In addition, a national network will need to have aggressive information collection and cannot rely solely on volunteer input.

## 5.2 Funding for a National Network

Adequate funding is essential for an effective national pollution prevention information network. Respondents to the follow-up survey suggested a variety of options, although no one response stood out as being the solution to the funding problem. Almost all respondents stressed that it was important to show that the network can provide real value for those using it. If pollution prevention organizations cannot obtain the needed information or must rifle through large volumes of information not relevant to their needs to find what they are in search of, then these organizations will neither use nor support a national network. Those interviewed suggested varied thoughts on funding options involving the different stakeholders who would gain some benefit from an effective national pollution prevention information network. There was agreement that there was no single answer to the funding problem, and no single source for the funding.

Federal government funding

There was a range of comments on the extent and nature of federal funding which could or should be available to support the implementation of an effective network:

- o Several people commented on the potential for some level of DOE, NASA and/or NIST support, either with respect to funding of technical studies to meet information needs of the system, or with respect to

state/local program efforts to work with industry in piloting alternative technologies. They noted that EPA's Office of Research and Development and DOD have cooperated to ensure that part of DOD's funding for the development of a solvent substitutes database is going to state and regional pollution prevention programs which have such information available.

o There was general recognition that EPA neither could nor should be the sole funder of a national system. But those interviewed felt that EPA funding should not be an all-or-nothing alternative, and that it should not be viewed entirely in the context of the kind of direct funding which has characterized PIES and PPIC. Other possibilities could include:

  - Allow or encourage states to allocate funding from their media grants to support the pollution prevention information network (as one of the measures to meet the objectives of EPA's pollution prevention guidance for the media grants).

  - Support pollution prevention technical studies needed for the information system through the Environmental Technology Initiative (ETI).

  - Put out RFPs, either through ETI or separately, to support pollution prevention technical studies for industries covered by the Common Sense Initiative (CSI).

  - Provide some direct support for the development of a pollution prevention information system under EPA's media programs, since the Agency has identified increased utilization of pollution prevention measures under all aspects of its regulatory programs as a priority. An effective information system will thus be critical both to support the efforts of the Agency's Regional inspectors, permit-writers and enforcement staff, and to support the parallel efforts of state programs striving to fulfill their program obligations under EPA grants.

Pollution prevention state/local program funding

Since the audience and users of a national network are most likely going to be state and local agency and pollution prevention program staff, several interviewees felt it would be reasonable for these programs to make some effort

toward funding such a project. At the same time, there was concern about the political difficulties of getting state legislatures to approve highly visible funding support for a national, or even regional, information system during a time of extremely tight state budgets; it was noted that the majority of state pollution prevention programs are still very small less than 4 FTEs) with extremely limited budgets. Suggestions included:

- Have state participation in a national network be included as a deliverable in their core or PPIS grant.

- Have each state program contribute, annually, at least a detailed case study complete with financial information, to a national case study databank (perhaps the best case study submitted annually gets national recognition from EPA or Roundtable). Suggested limitations were the potential unwillingness of companies to participate and publicize this information, and the possibility that quantity might be given priority over quality.

- Have programs contribute (or partially fund the support for) some portion of the time of an expert in a sector or process which is relevant or important to the state's pollution prevention efforts. Most respondents were skeptical that state/local budgeters would permit such an allocation of resources for out-of-state or -locality work.

- Have each state contribute a percentage FTE in support of a national or regional network. This percentage could be a straight percentage from every pollution prevention program or a scaled percentage based on program size and/or resources. The responsibilities of this FTE would be to contribute "expert" information in terms of specific processes, chemicals, or pollution prevention alternatives; field calls and requests for information from other pollution prevention programs, gather and collect pollution prevention information, update and maintain pollution prevention vendor lists, databases, and case studies; or support a regional library or clearinghouse. As with the previous suggestion, there was skepticism about the feasibility of this during a time of tight state and local budgets.

Industry funding and trade associations

Although the primary users and audience for a national network will most likely be state, regional, and local pollution prevention programs, other organizations

such as industrial companies, trade associations, consultants and vendors may be interested in accessing the information on a network. Respondents suggested some options for private sector support for funding of the system (e.g., subscription membership in the system, or charge per use). Obviously the willingness to pay would depend on the perceived value of the information. Most respondents noted that if the cost to access the pollution prevention network became a barrier to industry participation, other participants would be potentially losing access to valuable information which might otherwise be contributed to the system by these industries.

An alternative to direct industry funding for use might be provision of services or expertise to help support the system. This could provide greater value to the system than direct funding, and be more acceptable to industrial users.

Foundations

While currently available funding from foundations for pollution prevention activities is limited,[23] funding to support a pollution prevention information network might be available for the initial development or expansion of the network. Such funding would require that the recipient be a non-profit organization. The National Pollution Prevention Roundtable could serve that role; in addition, the advisory boards to regional centers which are formally governmental entities (e.g., the Waste Reduction Resource Center in Region 4) could establish counterpart non-profit organizations.

Revenue generation

Another possible method of funding a pollution prevention network would be to have the pollution prevention programs and any other organizations or individuals who wish to use information in the network pay for access to the network. Respondents to the follow-up survey offered a number of suggestions:

- Charge subscription fees for access to vendor lists, case study databanks, or technical article databases. Users would only be charged for those databanks which they wish to access.

- Charge annual membership fees to gain access to any part of the

[23] See Guide to Pollution Prevention Funding Organizations, Pacific Northwest Pollution Prevention Research Center, 1994.

network.

- Offer access free at first until the system is fully developed and increasingly useful, then start charging (although this would not be a full-cost charge).

There was some concern that adoption of any of these options might significantly reduce participation in, and potentially weaken, the system. But if these options were considered only as a supplement to some of the means of support suggested above, some respondents felt that the system as a whole might work without placing too high a burden on the smaller programs.

## 6.0 STRUCTURE/FORM OF A STATE-COORDINATED NATIONAL NETWORK

For state and local users of a pollution prevention information network, the important questions are ease of access, and the form, diversity and quality of the information available. The major message that emerged from the survey, interviews, Blue Ribbon Panel meetings and workgroup sessions is that these objectives can best be met by a diverse, decentralized regionally-based network designed, managed and coordinated to meet state and local program needs and the needs of their customers. Such a network could be responsive to specific regional concerns, and ease the access and data-search burdens for overworked staffs trying to meet day-to-day customer requirements. It could provide access, on a national basis, to high quality and specialized technical information -- both through its own resources and through ties with relevant federal or industrial databases.

Support for a regionally-based National Roundtable Information Sharing Network with access to expert elements (including those available within state and local pollution prevention programs) resulted from the expectation that such a system could best meet major priorities identified by those participating in identifying requirements and options:

- The design of the network should serve, as the first priority, the needs of state and local pollution prevention programs which provide pollution prevention information and support to commercial and industrial clients.

- The design and operation of the information network should provide state and local participants the major role in defining needs and opportunities, and remain responsive to their changing circumstances and requirements.

- The development and implementation of the network should recognize, and provide an appropriate range of services to support, programs with diverse capabilities, needs and resources.

- The network should, to as great an extent as possible, build on existing state and local capabilities, both in individual agencies and institutions and in on-going joint or regional efforts.

- The network should provide a variety of mechanisms for sharing expertise and experience between programs on a regular, on-going basis, and for drawing on the industry- and process-specific expertise of individual programs.

- The network should provide state and local programs access to sector- and process-specific information that is clearly organized and presented, and that can be relied upon by the programs' customers as current, accurate and adequately detailed.

- The network should, to the maximum extent feasible, provide access to, exchange information with, and utilize all other available federal or industrial information resources (e.g., PIES, NIST resource centers).

Because the system will build and expand on existing capabilities, it can provide state and local agencies the best service for the least cost, and will result in building greater capacity in those organizations already serving a large industrial base.

## 6.1 Proposed State-Based National Pollution Prevention Information Network

The system outlined in this section is a network managed through the National Pollution Prevention Roundtable. It is intended primarily to support state and local programs in providing the highest quality pollution prevention information to their customers. At the same time, it is intended to promote full and cooperative interaction with all other major information providers, and to facilitate availability of pollution prevention information for other potential users.

The major elements of the proposed National Roundtable Information Sharing Network would include:

- regional pollution prevention information centers (not necessarily parallel to the EPA regional structure) providing or facilitating access to technical information for state and local agencies;

- sector- and process-specific expertise identified in a variety of organizational arrangements (e.g., building on currently-existing regional, state or local capabilities, or utilizing other available external sources of expertise);

- regional advisory boards to help direct the activities of the regional centers;

- a national staff component in the National Pollution Prevention Roundtable to coordinate network activities and to manage and secure

resources;

- o a national advisory board (comprised of members selected by the regional centers and the Board of Directors of the National Pollution Prevention Roundtable) to set policies and operating procedures for the network.

The basic outline below is intended to reflect general agreements reached during the National Pollution Prevention Roundtable's Blue Ribbon Panel meetings[24] before and during the November meeting of the National Pollution Prevention Roundtable, as well as during workgroup and other meetings held in Minnesota. The proposed system is based primarily on a network of regional and expert centers. An approach utilizing a mix of regional centers and specialized technical expertise currently associated with various state, regional and other organizations was selected as the most effective means of meeting the diverse needs of state and local programs with widely varying capabilities and resources.

The regional centers can assist programs which have the requisite capabilities and resources in identifying appropriate directions to search for information; supply, where appropriate, more direct assistance with specific needs (including occasional on-site help); and help to enhance state and local program capabilities. The general familiarity of the regional centers with the states, programs and predominant types of industry in their regions should assist them in addressing basic regional needs and problems.

The expert components of the network will provide greater depth of specialized information and knowledge for addressing problems related to specific sectors or processes. They may be associated with state or local agencies or regional centers which currently have a high level of expertise with particular industrial sectors or processes, or they may be available through the efforts of other organizations (e.g., NIST's proposed National Metal Finishing Pollution Prevention and Environmental Compliance Center).

Regional centers and expert components in the system will access and make use of other available information sources (e.g., electronic information systems such as those which are currently available, or become available in the future, through federal agencies, universities, trade associations, etc.). Wherever possible, the

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[24] Blue Ribbon panel meetings to discuss the Roundtable's report and proposed network were held in Washington, D.C. (10/26/94) and Minneapolis, Minnesota (11/1/94). Briefings of state and local programs were held in Portland, Oregon (9/28/94) and San Francisco, California (10/20/94).

network will work cooperatively with other information sources and providers to improve the range and quality of available technical information; this might be done, for example, under memoranda of agreement (MOAs) with federal agencies.

The structure and roles are briefly summarized below.

### 6.1.1 Regional Centers

The general role for the regional pollution prevention information center is to provide or coordinate access to technical information for state and local agencies and programs within the region. Some of the specific elements of this role are listed below.

Separate centers are not needed for each EPA Region. The Waste Reduction Resource Center in North Carolina, for example, currently serves Regions 3 and 4. The number of regional centers would most likely be 5 or 6. Regional centers should preferably be co-located, or work very closely, with experienced pollution prevention programs actively providing technical pollution prevention support to industry, in order to benefit from the hands-on experience of needs and approaches which these programs have developed.

Roles of the regional centers:

- Provide and coordinate access to technical pollution prevention information for state and local environmental agencies, technical assistance programs, and other governmental or semi-governmental entities.

- Develop core library of technical information to distribute to state and local programs within the region.

- Collect information, and maintain database cataloging technical documents, vendor listings, bibliographic listings, expert lists and database directories.

- Package/synthesize specific technical information both for general distribution to state/local programs and in response to requests from agencies or technical assistance programs -- utilizing both in-house resources and other resources available through the network.

- Provide pollution prevention financial information (e.g., full-cost accounting; specialized relevant information related to insurance, loan program opportunities related to pollution prevention investments or programs).

- Provide electronic search capability and expertise to direct users with adequate resources in doing their own searches of appropriate sources of information (e.g., expert centers, PIES, other electronic or expert information sources).

- Direct users to appropriate centers with specialized expertise for more difficult questions or issues related to particular sectors or processes.

- In selected cases, provide on-site technical support to agencies/programs.

- Connect to and stay abreast of developments in electronic and other information resources for accessing technical information relevant to pollution prevention.

- Assist in the process of adding new relevant technical information from state and local programs to the information resources of the network.

- Coordinate with other regional centers, technical-expertise network components, and the Roundtable network staff and Advisory Board.

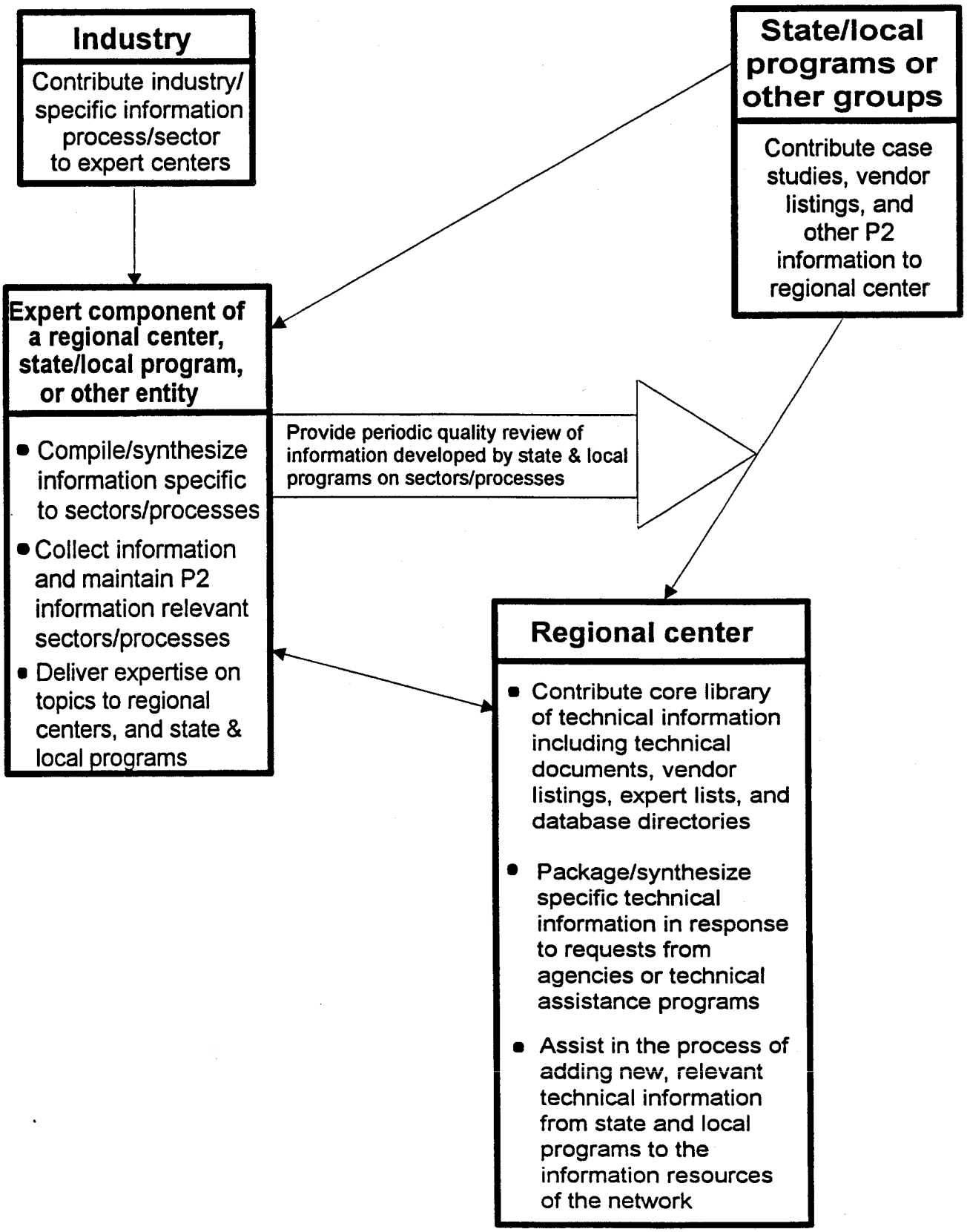
- Support e-mail listserver within the region linking state and local programs together for sharing of pollution prevention technical questions and information. (One regional center will manage a listserver e-mail system for technical pollution prevention issues connecting the regional centers and the specialized sector/process components of, or associated with, the network).

Each regional center would have an advisory board. Regional advisory boards would be responsible for determining regional information priorities, and for setting policies and operating procedures for the centers. The regional advisory boards would be composed of representatives of five state or local pollution prevention programs and four industry representatives in selected areas of expertise.

### 6.1.2 Expert Components for Industrial Sectors/Processes

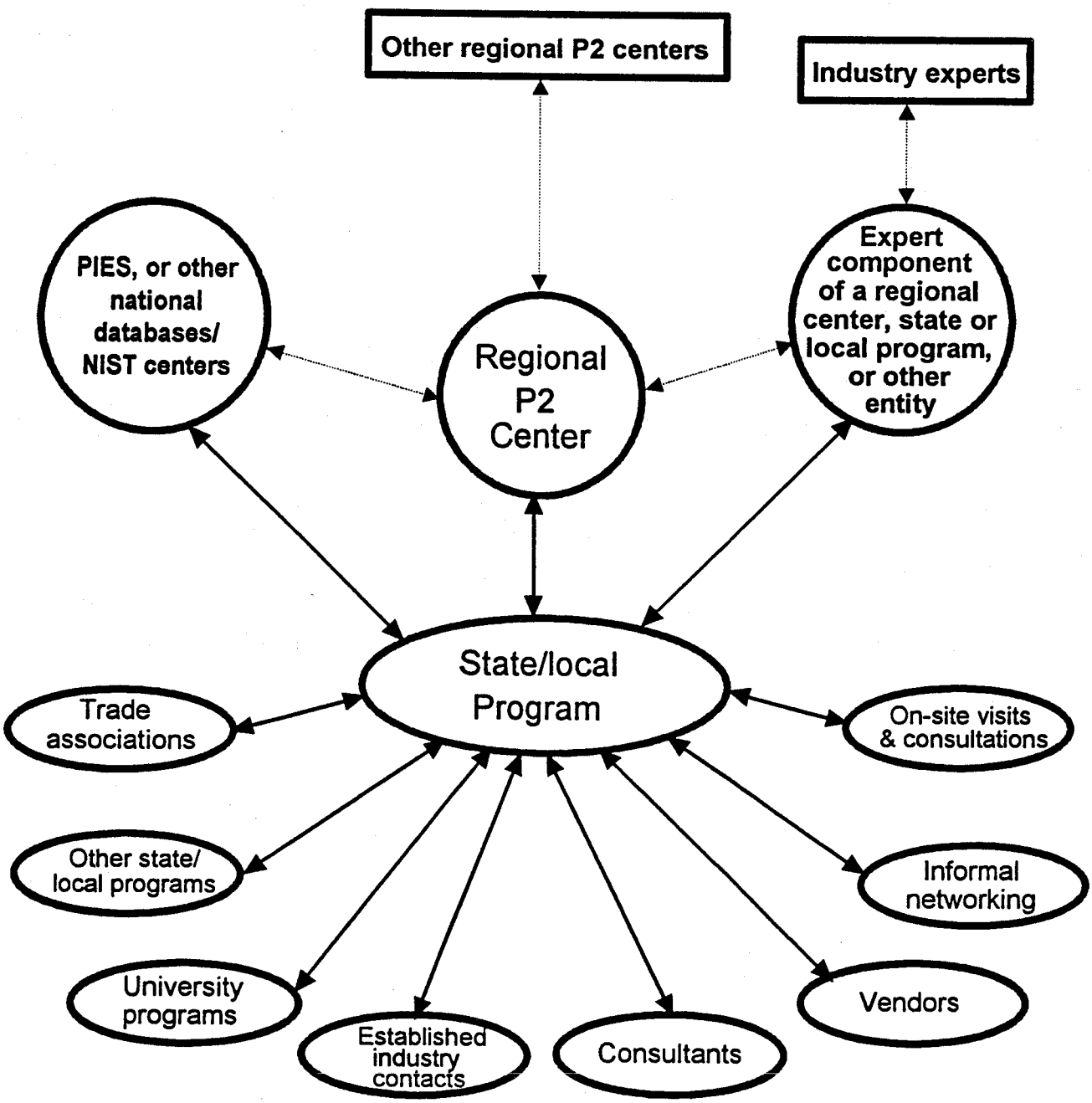
Expert components of the network would provide pollution prevention technical support for specific industrial sectors or processes. The objective with respect to this part of the system would be to build on what already exists, utilizing the expertise currently held by technical assistance centers, and working with information resources developed by federal agencies (e.g., the information center being sponsored by NIST for metal-plating and metal-finishing, the developing PIES/DOD/DOE information system for solvents and solvent-substitutes), trade

# INFORMATION DEVELOPMENT AND REVIEW

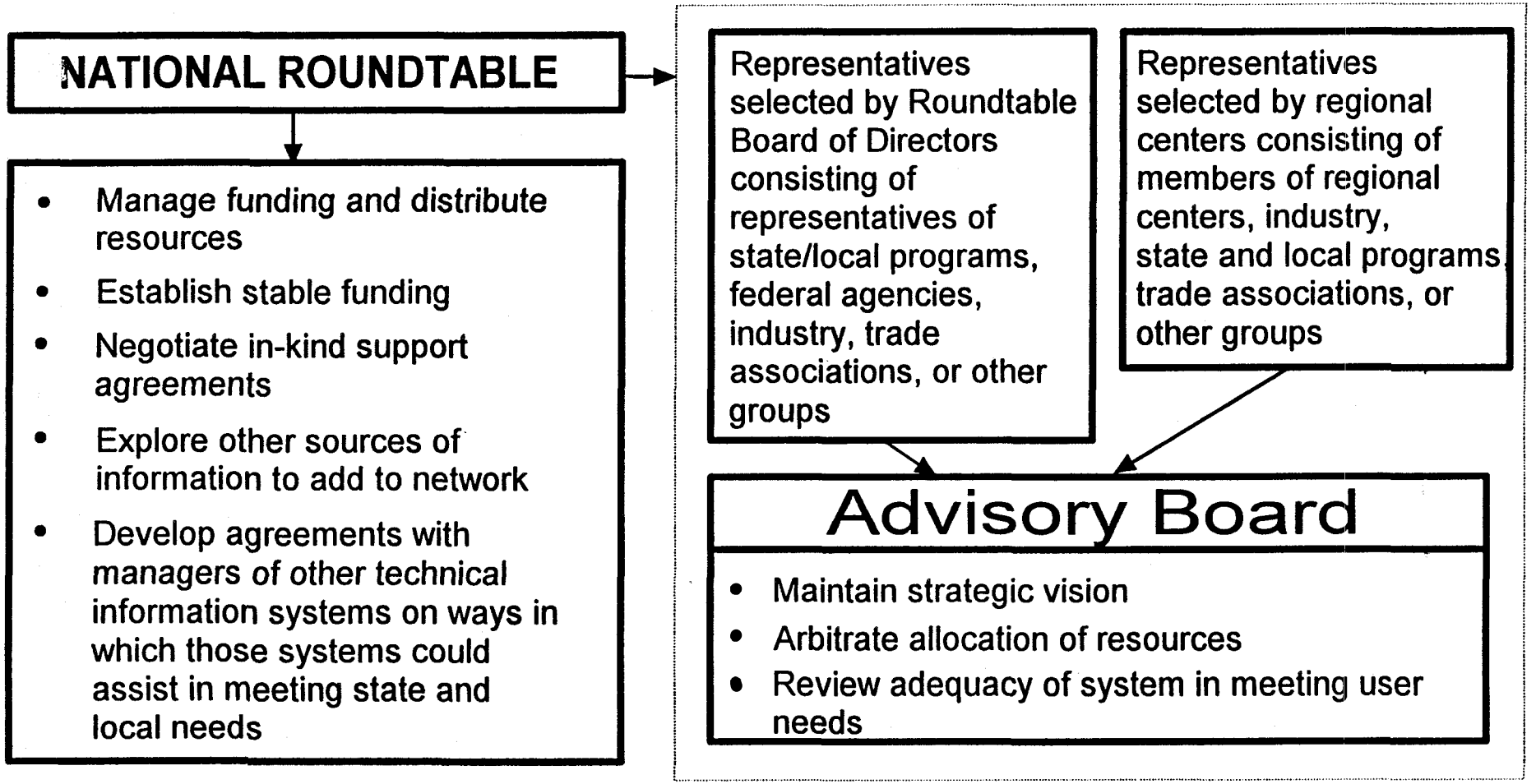

Industry
Contribute industry/ specific information process/sector to expert centers
State/local programs or other groups
Contribute case studies, vendor listings, and other P2 information to regional center
Expert component of a regional center, state/local program, or other entity
• Compile/synthesize information specific to sectors/processes
• Collect information and maintain P2 information relevant sectors/processes
• Deliver expertise on topics to regional centers, and state & local programs
Provide periodic quality review of information developed by state & local programs on sectors/processes
Regional center
• Contribute core library of technical information including technical documents, vendor listings, expert lists, and database directories
• Package/synthesize specific technical information in response to requests from agencies or technical assistance programs
• Assist in the process of adding new, relevant technical information from state and local programs to the information resources of the network

# INFORMATION FLOW

(From the perspective of the state/local program)



# COORDINATION AND MANAGEMENT


NATIONAL ROUNDTABLE
• Manage funding and distribute resources
• Establish stable funding
• Negotiate in-kind support agreements
• Explore other sources of information to add to network
• Develop agreements with managers of other technical information systems on ways in which those systems could assist in meeting state and local needs
Representatives selected by Roundtable Board of Directors consisting of representatives of state/local programs, federal agencies, industry, trade associations, or other groups
Representatives selected by regional centers consisting of members of regional centers, industry, state and local programs, trade associations, or other groups
Advisory Board
• Maintain strategic vision
• Arbitrate allocation of resources
• Review adequacy of system in meeting user needs

associations, or other industrial sources. In some cases, state or local programs or regional centers would serve as expert components of the network for specific industrial sectors or processes.

The principal roles of the sectoral- and process-expert components of the network would include:

- Compile/synthesize information specific to the sector or process (e.g., solvent cleaning, pulp & paper, textiles, metal finishing).
- Identify needs for topical information.
- Collect information and maintain database including technical documents, list of vendors, lists of experts. Maintain core library of information relevant to the sector or process.
- Identify and maintain linkages with other sources of expertise on the sector/process.
- Maintain quality control of information and provide periodic quality review of information developed by state and local programs on sectors/processes.
- Continually update information on the sector/process.
- Work with regional information and management specialists and programmers to develop synthesized information packets for distribution in various forms (hard copy, CD and searchable electronic).
- Provide direct consultation to state and local programs; answer the difficult questions through in-house information searches or through connections with sector or process experts.

There are numerous industrial sectors and processes for which it would be valuable to have technical pollution prevention expertise nodes available in the network.[25] It will be necessary to determine priorities, however, for phasing in

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[25] Examples of industry sectors include: agricultural production and services, chemical manufacturing, clay & glass, dry cleaning, electronic equipment, food production, furniture and fixtures, health services, industrial machinery & equipment, leather & leather products, metal casting, metal finishing and plating, mining, oil & gas production, petroleum refining, printing & publishing, pulp & paper, rubber & plastic products, textiles, transportation equipment &

such components as resources allow. The order in which components will be made available will depend on a number of factors, which could include:

a) opportunities provided to participate in expert information centers already established, or in the process of being established, by others (e.g., the National Metal Finishing Pollution Prevention and Environmental Compliance Resource Center to be funded by NIST);

b) existing expertise in state/local programs or regional centers;

c) relative needs identified by state/local programs and regional centers.

Priorities in the allocation of resources for phasing in specific sector or process expertise components would be determined by the National Roundtable Information Sharing Network Advisory Board.

### 6.1.3 Central Coordination

The National Pollution Prevention Roundtable will serve a central coordinating function for the network. This will include a planning and strategy role to be performed by the National Roundtable Information Sharing Network Advisory Board, and administrative roles to be assumed by Roundtable staff.

Advisory Board:

The policies of the regional centers and expert components will be coordinated by the National Roundtable Information Sharing Network Advisory Board, some of whose members will be selected by the regional centers, and some of whose members will be selected by the Board of Directors of the National Pollution Prevention Roundtable. Members of the Advisory Board will include representatives of state and local programs, federal agencies, industry, and others who can make contributions to the development and improvement of the network. Roles of the Advisory Board would include:

o maintaining strategic vision;

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services and wood products. Examples of common or specialized processes include: accounting, adhesive coating, ceramics, chemical engineering, energy usage, filtration & other separation processes, inventory control, maintenance, mechanical engineering, paints & coating and solvent cleaning.

- o policy and operating procedures for participants;
- o reviewing, on a continuing basis, the adequacy with which the system is meeting user needs, and implementing necessary measures to meet changing needs;
- o arbitrating allocation of resources; and
- o reviewing quality-control needs/review requirements

Staff:

Roundtable staff would serve the central administrative functions for the network, as well as examining opportunities for expanding the network's capabilities, range of participants and interconnections. Activities would include:

- o management of funding and management of distribution of resources,
- o establishment of stable funding,
- o negotiation of in-kind support agreements,
- o exploration of other sources of information to add to the network, and
- o development of agreements with managers of other technical information systems on ways in which those systems could assist in meeting state and local needs.

## 6.2 Relation of Network to Other Information Resources

The focus of this proposal involves establishing a more effective and comprehensive framework for developing and sharing pollution prevention information between state and local programs. It provides for a network through which state and local programs can benefit from each other's knowledge and gain access to required technical expertise, and it is structured so that the states have the ability to modify system components and operations in response to new needs and circumstances. It also provides a mechanism for state and local programs to develop relationships with a variety of other partners in facilitating pollution prevention information development and dissemination -- particularly industrial and federal.

One of the potential federal linkages for the proposed network would be a revitalized, fully operative Pollution Prevention Information Exchange System (PIES). The PIES system, managed by EPA's Office of Research and Development (ORD) could provide a national database of pollution prevention information which would greatly facilitate information exchange and collection, and could provide interconnections with other valuable sources of information. At the same time, PIES would benefit from information collected and distributed through the National Roundtable Information Sharing Network.

ORD has leveraged $7 million of Department of Defense (DOD) funds from the Strategic Environmental Research and Development Program (SERDP) to overhaul and rebuild the PIES system. DOD's initial interest is in the development of a national information system with all available information on solvents and solvent substitutes. Using the SERDP funds, ORD is involved in a project to link several federal databases, including DOE's EPIC, DOD's DENIX, NIST's TecNET and PIES. ORD is also involved in the development of an integrated expert solvent substitutes database across the agencies and departments; the database is intended to utilize and expand on EPA's Solvent Alternatives Guide (SAGE).

One of the objectives of the project is to rebuild PIES into a user friendly point and click network, distributedly managed at several federal and state agencies. The intention is for PIES to be accessible through both a BBS/PC Board version and through Internet. Once available, such a PIES Internet connection could link users to a range of federal databases with pollution prevention information through a single connection.

ORD has plans to provide support to regional centers to distributedly manage several integrated databases developed either by the states or by PIES. Developing a close working relationship between the National Roundtable Information Sharing Network and PIES would be of value to all potential beneficiaries of an effective national system of pollution prevention information.

Another important set of linkages for the Roundtable pollution prevention information network would be with NIST's Manufacturing Extension Partnership (MEP) -- including the information systems used to provide support for the manufacturing extension centers and the State Technology Extension Program (STEP). The extension centers provide support services, including both environmental and technical support, for smaller businesses; some state and local programs have become involved in the work of the centers. In addition, NIST is providing support for integrating relevant environmental and technical information, including the establishment of a National Metal Finishing Pollution Prevention and Environmental Compliance Resource Center.

There are numerous additional sources of pollution prevention technical information -- both industrial and governmental. One of the objectives of the Roundtable will be to identify those resources and to develop linkages and cooperative relationships that will expand the range and quality of pollution prevention information available to all those seeking technical pollution prevention support.

# APPENDICES

## Appendix 1: Resource Requirements of the State/Local Network

The following budget estimates are proposed for the components of the network:

### I. Regional Centers

Required resources include both start-up costs and regular operating costs. The figures below are estimates for a single center.

Initial costs:

| | |
|---|---|
| Establish library: | $20,000 |
| Computers: | $15,000 |
| Fax, phones, copy equipment, scanner: | $35,000 |
| Total per center: | $70,000 |

Total for 5 centers (WRRC already established): $350,000

Annual costs:

Personnel: 3 engineers with hands-on experience for center operations:

| | | |
|---|---|---|
| Regional manager: | $65,000 | |
| 2 Additional engineers: | $100,000 | |
| Information manager | $35,000 | |
| Clerical | $25,000 | |
| Total Personnel: | | $225,000 |

Other:

| | |
|---|---|
| Office rental (depends on area and/or if located with existing program) -- estimated annual avg: | $12,000 |
| Travel costs (varies with form and extent of support provided by center) -- estimated annual avg: | $20,000 |
| Office support costs (phone, maintenance) | $12,000 |
| (mail, supplies, etc.) | $12,000 |

| | |
|---|---|
| Annual Subtotal: | $291,000 |
| Overhead costs at 40%: | $116,400 |
| Total annual costs per center: | $407,400 |
| Total for 6 centers: | $2,444,400 |

## II. Expert Components for Industrial Sectors/Processes

Resources required:

The intention is that these centers would be based on existing expertise and resources already available at the location at which they are established. Additional operating expenses would include:

Personnel:

Estimate of two people per center:

| | |
|---|---|
| Engineer for providing technical support | $50,000 |
| Clerical/information specialist | $35,000 |

Office support:

| | |
|---|---|
| (phone, maintenance) | $12,000 |
| (mail, supplies, etc.) | $12,000 |

| | |
|---|---|
| Annual Subtotal: | $109,000 |
| Overhead costs at 40%: | $ 43,600 |
| Total annual costs per unit: | $152,600 |
| Total for first year for 5 expert units: | $763,000 |
| Three additional units for subsequent years | |
| Total for 8 units | $1,220,800 |

## III. Central Coordination

Resources required:

Initial costs:

| | |
|---|---|
| Additional phones | $1,000 |
| Additional computers | $5,000 |
| Other equipment | $1,500 |
| Total initial costs: | $7,500 |

Annual costs:

| | |
|---|---|
| National director | $70,000 |
| Information manager | $40,000 |
| Clerical | $30,000 |
| Travel/meeting costs for Advisory Board | $25,000 |
| Additional space rental | $6,000 |
| Phones/fax/mail | $12,000 |
| Computer network connections/use | $2,000 |
| Annual Subtotal: | $185,000 |
| Overhead costs at 40%: | $74,000 |
| Total annual costs: | $259,000 |

**Total Network Costs**

| | |
|---|---|
| Total one-time costs: | $357,500 |
| Total annual costs (1st year): | $3,466,400 |
| Total 1st year cost: | $3,823,900 |
| | |
| Total annual costs (subsequent years): | $3,924,200 |

## Appendix 2: Blue Ribbon Panel -- 1994 Clearinghouse Project

### States

| | |
|---|---|
| California Dept. of Toxic Substances Control: | David Hartley |
| Illinois Hazardous Waste Research & Info. Center: | David Thomas |
| New Jersey Dept. of Environmental Protection: | Jean Herb |
| Massachusetts Dept. Environmental Protection: | Lee Dilliard |
| Alaska Department of Environmental Conservation: | Dave Wigglesworth |
| Kansas Dept. Health and Environment: | Theresa Hodges |
| Idaho Dept. of Environmental Quality: | Kate Sewell |
| Michigan Dept. Natural Resources: | Nan Merrill |
| Minnesota Technical Assistance Program: | Donna Peterson |
| Montana St. Univ. Extension Service: | Karen Sanchez |
| Wisconsin Dept. of Natural Resources: | Lynn Persson |

### Local Government

| | |
|---|---|
| San Diego County: | Linda Pratt |
| Local Government Commission: | Tony Eulo |
| National Association of Counties: | Naomi Freeman |
| Erie County Office of Pollution Prevention: | Tom Hersey |

### Federal

| | |
|---|---|
| Congressional Office of Technology Assessment: | Kirsten Oldenburg |
| National Institute of Standards and Technology: | David Gold |
| Environmental Protection Agency: | Elizabeth Anderson, Pollution Prevention Division<br>Myles Morse, Office of Research and Development |

### Regional Groups

| | |
|---|---|
| Northeast Waste Management Officials Association: | Terri Goldberg |
| Great Lakes Pollution Prevention Roundtable: | David Leibl |
| North Carolina Dept. Envt., Health, and Nat. Res.: | Gary Hunt |
| Pacific Northwest Pollution Prevention Research Ctr.: | Madeline Grulich |
| Great Lakes Commission: | Katherine Glassner-Schwayder |

### Academics/Research Institutes

| | |
|---|---|
| Inform: | Mark Dorfman |
| TURI, University of Lowell: | Ken Geiser/Janet Clark |
| University of Tennessee: | George Smelcer |
| Northeast-Midwest Institute: | Elizabeth Collaton |

| | |
|---|---|
| Battelle-Pacific Northwest Laboratories: | Keith Peterson |

## Environmentalists

| | |
|---|---|
| National Environmental Law Center: | Hillel Gray |
| Environmental Defense Fund: | Lois Epstein |
| Center for Neighborhood Technologies: | Jo Patton |
| Working Group on Community Right-To-Know: | Paul Orum |

## Industry/Private Sector

| | |
|---|---|
| Dow: | Craig Doolittle |
| Polaroid: | Harry Fatkin |
| 3M: | Tom Zosel |
| Huber Inc.: | Randy Price |
| Shapiro and Associates: | Scott Butner |
| Amoco: | Karen St. John |

## Associations

| | |
|---|---|
| Printing Industries of America: | Ben Cooper |
| National Association of Metal Finishers: | William Sonntag |
| American Petroleum Institute: | Walter McCleod |
| American Institute of Pollution Prevention: | Alan Rimer |
| American Trucking Association: | Karen Medlin |
| Chemical Manufacturers Assoc.: | Kathleen E. Kunzer |

## Small Business Assistance Programs

| | |
|---|---|
| Texas Natural Resources Commission: | Kerry Drake |
| MN Small Business Assistance Program: | Leo Raudys |

## The National Pollution Prevention Roundtable Board of Directors

| | |
|---|---|
| Nevada Small Business Development Center: | Kevin Dick, Chair |
| Connecticut Technical Assistance Program: | Rita Lomasney, Vice-Chair |
| Nebraska Lincoln-Lancaster County Health Dept.: | Rick Yoder, Secretary |
| Wyoming Department of Environmental Quality: | Pat Gallagher, Treasurer |
| New Jersey Institute of Technology: | Kevin Gashlin |
| Ohio Environmental Protection Agency: | Anthony Sasson |
| Florida Department of Environmental Protection: | Janeth Campbell |
| Alaska Department of Environmental Conservation: | Marianne See |
| Texas Natural Resource Conservation Commission: | Patti Everitt |
| Delaware Dept. of Natural Res. & Environmental Control: | Andrea Farrell |